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The School Building as a Social Center.

PART I.

By DWIGHT H. PERKINS.

A LARGE number of school buildings have been erected which have been planned for adaptation as social or neighborhood centers, and the number is increasing in rapid ratio each year.

The desire to establish social centers as such is only a secondary cause, however, for the increase in the number of such schools. The primary causes are the expanding demands of education, which are multiplying the functions and increasing the requirements for something more than mere class rooms in our public schools.

A modern school problem, properly conceived and fully stated, requires the architect to plan a structure which is in itself a neighborhood or social center for daytime use by children. At the same time he automatically plans a social center building for adults to be used outside of school hours. There is no essential difference between the two; the only difference remaining relates to the size of furniture for children and for adults, and this is becoming gradually simpler as the use of fixed seats and desks is discontinued.

The problem is, therefore, when schools are properly planned as schools, principally one of administration. First throw away the key to the front door, engage extra engineers and directors, arrange and announce a program, and the result is sure to be a neighborhood center in full action.

To establish social centers a community must first engage the *man* or *woman* who shall be leader; second, make a program vitally related to local problems, and third, erect a modern school or revise the old one to provide physical facilities.

The school, by its relation to all of the people, regardless of divisions of politics, religion, or wealth, is the only institution which can be made to serve as a neighborhood or social center. It alone is possessed by all the people. It fills a need not met by any other type of building. It alone can justify the expenditure of public money for its construction, and it alone can give to the people a social center without expense, when it is properly planned as a modern school.

At the same time it gives to the architect the greatest opportunity for display of his talents of any type of modern building for which there is great and increasing demand.

It therefore follows that if we would study community centers (we may as well drop both adjectives, "social" and "neighborhood," and substitute the one inclusive word "community"), we will have to consider the latest development of the school and state, its requirements, its functions, and facilities.

We will pass by the one-room district school and give our attention first to a community where there are five hundred children under high school age. The modern educator asks for these: twenty class rooms, because he will object to more than twenty-five pupils for each teacher; he asks for a shop for manual training, a room for cooking and sewing, a central auditorium large enough to seat the whole school and having entrances and exits of its own; a gymnasium, a library, book and reading room; a sitting and rest room, with kitchenette for the teachers, which shall be large enough for neighborhood committees and mothers' conferences; a polling place with booths for the voters, administrative offices, emergency room, toilets, storerooms, bicycle space, heating and plumbing facilities, etc.; in addition, a playground of at least three acres — more, if possible.

What more could the most enthusiastic community center secretary demand?

The same modern educator, if desiring a high school, would add to the above rooms and facilities for scientific study not pursued in elementary schools, shops for metal work required in a course of four years of manual training, a large lunch room, a separate gymnasium and field for girls, a natatorium, a museum of art and natural history, and some day, not far off, a home for the principal.

The playground for such a high school should contain not less than six acres.

These statements of requirements are definitions of the modern public school. Such schools have been developing gradually for a number of years. One may trace their appearance by reference to the departure from square three-story, box-like buildings of the eighties, which consisted merely of a number of ordinary class rooms and stairways.

The response to the desire for assembly space was the first step in the design of the modern school. This first step consisted of some form of portable partition between two class rooms, then between two class rooms and the adjacent corridor, so that rooms or rooms and corridors could be thrown together for assembly use.

The separate hall with a small stage followed. All of these were in the third or top story, frequently run up into the roof with high ceilings and of increasing attractiveness.

The greater demands of the public and a few fires caused a rapid change in school building, and between 1900 and 1905 first-story assembly halls became general. Seating capacity and stage dimensions have steadily increased; rear stage access is being provided, and in many cases the whole assembly portion is being put on the ground

level at one end of the building or in a separate wing; so that at the present time we find the type generally indorsed and frequently built, which provides perfect accommodations for the school and all that a neighborhood needs for community center auditorium purposes.

But community centers do not thrive on auditoriums alone—they need gymnasiums as well; and a similar survey to the above discloses the original school gymnasium as a corridor merely. Then we notice it widening, then occupying basement space under the assembly hall, and again exchanging places with the assembly hall, going in above it when the hall is located on the first story level. Sometimes the gymnasium and assembly hall are on the same level, separated by portable partitions, so that either can be expanded temporarily by spreading into the adjacent space. And better still, we are now beginning to see separate ground level gymnasiums with special entrances which make neighborhood use easy.

What is true about assembly halls and gymnasiums is also true in a lesser degree about space and equipment for manual training and domestic science. These rooms may be traced from incidental beginnings and basement unused spaces to quarters as well built, finished, lighted, ventilated, and equipped as any other parts of the school, and they also are coming to be used by the older members of the community outside of school hours.

Night schools for all the daytime subjects, as well as evening clubs for the study of neighborhood problems and the elevation of citizenship, are coming more and more to use the class rooms and facilities provided for ordinary school purposes; and the kindergarten, formerly an ordinary class room, or worse, has become a department by itself, with separate entrances, toilets, wardrobes, work-room, play space, and plenty of morning sunlight. In the evening it is a perfect club room for a hundred neighbors.

The development of the public library system in cities has gone on until now one expects to see a library station, with distributing center and reading room, in each school,

and in many modern buildings he is not disappointed.

No modern school is a school if it does not have a playground, and communities are becoming intelligent enough to see that school boards and park boards are overlapping—that neither the school building and playground nor their administration should be separate. They are so closely interwoven that their successful conduct depends upon one board with a coördinated plan. The same may be said of schools and libraries, and schools and polling places, now that saloons are becoming less popular centers of citizenship control. In fact, schools, high schools, parks, playgrounds, gymnasiums, kindergartens, libraries, clubs, forums, polling places, natatoriums, bathing facilities, vocational shops, provision for music, for choruses, festivals, and pageantry—all these are a part of one educational system. There is no antagonism between them; instead, each division helps the other to attain its best results, and the architect who builds his schools upon that general proposition will insure a much longer period of service-ability of his buildings for his clients, the parents and children, than would be the case if he narrowed down his design to provide for a few functions only.

We will be able in the next article in this series to show by illustration a number of school buildings in use, or about to be, and to mention those features which relate to the subject of this article. We shall endeavor to show wherein they are available for community use, and in a few instances we shall be able to describe not only the neighborhood use which is possible, but also the service of that kind which they are actually giving in certain localities.

A very important contribution to the development of the modern school has come from the recreation buildings and community centers erected in numerous small parks. There is no feature in such buildings which should not be incorporated in the school plant, or as is the case in Gary, Ind., the schools should be built in the parks and the management be all under one board for one community purpose.



Assembly Hall, showing Kindergarten on Upper Level, in Lincoln Wood School, Evanston, Ill.

Perkins Fellows & Hamilton, Architects

The Use of Native Woods for Interior Finish.

PART IV. (Concluding Paper.)

By C. MATLACK PRICE.

OAK is a historic wood both in this country and throughout most of continental Europe—a wood of sterling qualities and many uses. It is said, indeed, that while oak is not so suitable for certain uses as certain other woods, it is the best suited to the greatest number of uses. The term "solid oak" strikes a note in the mind as definite as "solid silver"—inquiry or speculation as to its properties proceeds no further.

In classing the oaks it would serve no purpose, and lead only to confusion, if an enumeration were given of the twenty-seven species of "white oaks" and the twenty-five species of "black oaks." The designation "white" and "black" is, moreover, only a botanical distinction, and one rarely, if ever, taken account of by lumbermen. Of the "white oak" division, the tree known as white oak heads the list, while in the "black oaks" division the tree called "red oak" is considered the leader.

Broadly speaking, the properties of all the oaks are similar. Some may be tougher than others, some may be more resilient, some heavier, some may better withstand weather than others, some may be peculiarly adapted to staining or fuming, but good qualities pervade all.

We all know oak as a strong, tough wood, remarkable for its suitability for exposed work



Stairway of Oak in House at Haverford, Pa.
Wilson Eyre & McIlvaine, Architects

and for its combined structural and decorative values, as well as its adaptability to carving.

It was said above that oak is a "historic" wood—and it was intended to imply the association which is one of our legacies from the Old World. The term—"a room of oak," "oak wainscoting," or "oak paneling"—calls to mind at once the time mellowed interiors of old English mansions or the smoke blackened ceiling rafters of some venerable tavern or coffee house. Innumerable associations that are a deep rooted part of the race to which we belong cling around the very mention of "old oak."

The associations, which might almost be called "literary," are, in a way, peculiar to oak, and are a much greater factor in popularizing its use for interior work than might be supposed. But since these traditions are common property, it is not necessary to do more than remind the reader of their potency, which years have not lessened.

The greatest concern of the present generation should be the conservation of white oak timber and the planting of stands for future generations, because the best lumber (especially for quarter-sawing) comes from oak trees of one hundred and fifty years or more of growth. The im-

patience of the present day does not wait one hundred and fifty years for timber to reach its



Straight Sawn Oak
Illustration ¼ Width of Specimen



Oak Hall in House at Haverford, Pa.
Wilson Eyre & McIlvaine, Architects



Quarter-sawn Oak
Illustration ¼ Width of Specimen

growth, and although this country has had vast stands of oak over considerable areas, it is easily possible to foresee a time when large lumber operations in oak will be a thing of the past.

The heartwood of oak is naturally light brown in color, with only a comparatively thin ring of sapwood. Its most striking physical characteristic is its pronounced formation of medullary rays, and the use of these for "figure," as produced by quarter-sawing, is equaled by no other wood in the world. We are all familiar with the appearance of quarter-sawed oak, notably in office furniture.

The furniture makers use enormous quantities of the wood in "period" furniture, as well as in "mission," "craft," and "cottage" furniture, and oak is largely used as well for a veneer wood on "built-up" panels. Sentimentally, there are few people who would not prefer to know that the paneling of their room is "solid oak," even though practically a "built-up" panel is more likely to withstand warping and shrinking.

The adaptability of oak to carving was mentioned, and this is one of the most conspicuous properties of the wood. Not only massive and vigorous designs, such as grotesques, corbels, and brackets (indoors or out), may be hewn from oak, but carving of remarkably fine scale and detail may also be executed. One of the most splendid examples of carved oak in this country is the ceiling of the Exhibition Room, on the main floor, and between the two courts of the New York Public Library.

Speaking again of the different varieties of oaks, one difficulty in this connection arises from the existence, in



Private Office of Mellor & Meigs, Architects, Philadelphia, Pa.
Panels are of English oak; remainder of woodwork is American oak

some cases, of several popular names for the same tree, and in general from the failure of the millmen to make any distinction, even if the logs have come in from the lumberman separately and with different designations.

Furthermore, the minor differences in physical properties do not greatly affect the uniform suitability of the wood for use as interior finish, though if certain specific effects are desired it is always well to buy the wood from a sample than to buy it merely by name.

Oak is a porous wood, with long pores running the length of the log. These pores, when the wood is quarter-sawed, naturally present open ends, while straight-sawing also lays open many pores longitudinally. These pores afford opportunity to force stains well into the wood and make it peculiarly susceptible, as well, to any process of fuming.

ELM is found in this country in six species, or varieties, of which white elm is the best known to the lumber trade. All the elms are of nearly similar properties, and white elm, slippery elm, and cork elm are commonly classed together as "northern elm." In early lumbering days elm was cut considerably in Michigan, while throughout New England, as well as the Middle Atlantic states, it has long been highly esteemed as a shade tree.

In its structure elm is strong and tough, and while it does not possess a great deal of character, it is possible to bring it to a fine appearance with stain and polish. Quarter-sawing of elm brings out no figures, as the medullary rays are not prominent.



Quartered Oak Paneling in Dining Room, President's House, Columbia University, New York
McKim, Mead & White, Architects



CARVED OAK SCREEN AND DOORWAY IN READING ROOM



OAK CEILING OF EXHIBITION ROOM CARVED FROM THE SOLID

CARVED OAK DETAILS IN THE NEW YORK PUBLIC LIBRARY, NEW YORK, N. Y.

CARRÈRE & HASTINGS, ARCHITECTS

Although not so widely heard of as many other native woods for interior finish, it is stated in Gibson's "American Forest Trees" that the state of Michigan alone sends 50,000,000 cubic feet of elm to its factories annually, and of this total, 2,000,000 cubic feet go to the furniture factories. Furniture making, whether one considers the exposed portions or the framing, is a good criterion for the adaptability of a wood for interior work, because the same properties which are essential in one use, such as the thoroughness with which it may be seasoned, its appearance, and its manner of taking stains, are equally essential in the other.

THE PINES are divided, in commercial usage as well as by foresters, into two groups, — the soft pines and the hard pines. In the first division there are listed twelve varieties, and in the second, twenty-two, and in both it is important to always bear in mind that no other wood varies so in its different "grades," and that great care must be taken first to specify exactly the grade desired, and then to see that all the stock conforms to the grade sample selected and approved. "Y. P.," for instance, meaning yellow pine, appears in many specifications; but there are widely different grades of this lumber, as with all the other pines.

While the properties of all pines, with regard to interior finish, are broadly similar, there are certain differences and peculiarities worthy of note not only as between the "hards" and "softs," but in different varieties in each division. The designation "soft pine" originated as a means of distinction from the heavier "pitch pines." Occasionally one hears the terms "pumpkin pine" and

"cork pine" — these, however, only in speaking of the wood itself, and with reference to the even, homogeneous grain of perfect lumber from old and well-grown white pine trunks.

The usual "white pine" of commerce is one of the softest and most easily worked of all woods used in building. Considering its lightness, it compares reasonably well for strength with other woods, though it is valuable chiefly for characteristics not dependent upon strength.

Most pines are trees of rapid growth, so that the annual rings are clearly defined in cross-section, being more pronounced in some species than in others. Medullary rays cannot be considered a conspicuous feature.

White pine has always been popular with the carpenter because it works with great ease, does not

split when nailed, and holds its form better than many more expensive woods after it has been seasoned.

This property makes soft pine a much used wood for sash and doors, and for the cores of "built-up" veneered panels.

In its natural appearance soft pine, in the varieties most frequently met with, presents a considerable variety of "figure," often not at all unlike cypress. The body color of the wood, unstained, is cream; the "figure" formed by the difference in color of the two growths is a reddish brown or orange color, and is displayed in quarter-sawed or "rift-sawed" stock.

Being almost entirely free from resin, this wood is an admirable base for any kind of enamel or paint, or, if it is desired to bring out the natural interest and beauty, for the application of any kind of transparent stains.



Carved Oak Reredos with Quarter-sawed Panels



Oak Paneling in Den of House at Chestnut Hill, Pa.
Mellor & Meigs, Architects



Ammonia Fumed Oak Finish in Goshen Inn, Goshen, N. Y.
Walker & Gillette, Architects

An important white pine is the western white pine, which is now shipped in considerable quantities as far east as Chicago to be manufactured into doors and trim. Another western soft pine is the "sugar pine," which is said to be more immune than the white pine of the East from tendency to shrink, swell, or warp. The appreciation of the former large stock of high-grade white pine has created an eastern market for the western pines, though only the higher grades are profitable to ship, which leaves the lower grades, in both the East and the West, supreme in their own markets.

The hard pines, though harder than the soft pines, are, in turn, considerably softer than most of the "hardwoods" used in interior finish. "Shortleaf" pine, for instance, though actually listed as a "hard" pine, is nearly always alluded to as "soft," to distinguish it from still harder pines in the "hard" group. The "shortleaf" is an important wood, of numerous uses which follow the various grades in which the lumber is marketed — from stock for such rough work as plaster-lath and packing-boxes to stock for use in the manufacture of furniture and interior trim. It is known, also, and perhaps more widely, as "yellow," or "southern yellow pine."

In 6-inch widths it is used for under-flooring, with $2\frac{1}{4}$ -inch tongued-and-grooved stock (of better grade) for upper flooring. For single-flooring a good grade of the same width, tongued-and-grooved, but heavier, is often used. "Shortleaf" pine is an abundant wood in this coun-

try, widely available and widely distributed, which makes it a distinctly inexpensive wood. It is not a cheap wood in the sense of being inferior in its own way, nor is it a wood (except in its lower grades) for cheap work. While it does not cost as much as some lumber used for interior trim, it compares very favorably in appearance and service with many more expensive woods. Being softer than the variety known as "longleaf" pine, "shortleaf" is

preferred by the manufacturers of sash and doors because it is far easier to work. It is often preferred to the "longleaf," also for interior trim, though the figures are quite similar. The wide annual rings in the heartwood when quarter-sawed display effective coloring and figure, which may be further enhanced by staining.

Very similar to the "shortleaf" pine is the "loblolly," locally known by several other names — a yellow pine and similar as well to the variety known as "Cuban" pine. There

is, in fact, a great similarity in the four most prominent of the southern pines, — the shortleaf, longleaf, loblolly, and Cuban, — and it is said to be very difficult to distinguish one from the other upon mere superficial inspection of the wood.

Summarizing the properties and uses of the "shortleaf"

pine, a concise and authoritative summary appears in one of the reports of the United States Forest Service: "It is the opinion of those who have studied the shortleaf pine's habit of growth and the extent of its natural



Living Room in House of James Hopkins, Esq., Brookline, Mass.

Kilham & Hopkins, Architects

Walls of wide North Carolina pine sheathing



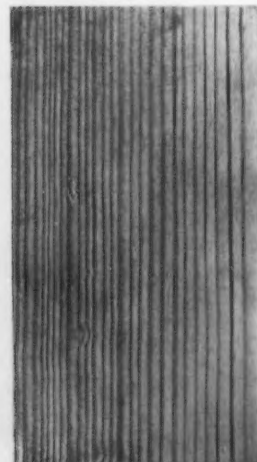
Committee Room, Lumbermen's Building, Panama-Pacific International Exposition, San Francisco, Cal.

Bernard R. Maybeck, Architect

The walls are of California white pine in wide panels of veneer and matched stock. The furniture is of California sugar pine



Straight Grain of Hard Pine



Edge Grain of Hard Pine

range that it promises to continue as one of the important timber trees of the South. . . .

"Furniture makers, who use yellow pine in considerable amounts, find shortleaf an admirable wood. It is worked into frames, goes into the interior of couches, tables, stands, and desks, and in the cheaper grades of similar articles may appear as the outside, visible part. The grain is handsome and shows well in natural finish or when stained.

"Inside and outside trim for houses is manufactured from shortleaf pine. It is widely used for flooring and is recommended both by appearance and because of its wearing qualities.

"It responds readily to oils, wax, and other floor finishes and dressings.

"It answers equally well as wainscoting and ceiling, for chairboards, baseboards, brackets, mouldings, cornices, roseblocks, ornaments, carved work, spindles, balusters, railings, stairs, and panels. Window frames and frames for doors, and the doors themselves, and sash are largely manufactured from this wood."

The "longleaf" pine is very strong, as well as being the hardest of the pines, is tough and compact and resinous, though the resin ducts are few. The color is a light orange, sometimes reddish, with almost white sapwood.

The figures in this variety of pine, as in the others, do not result from medullary rays, which though numerous are inconspicuous, but from the marked difference in color between the spring and summer growths. The dark colored summer wood, which gives "longleaf" pine its strength, predominates in each annual ring.

Much of the value of this wood for interior finish comes from its striking figure, especially important in the manu-



Straight Grain,
Soft Pine



Door and Trim of Curly Pine



Edge Grain, Soft Pine

facture of doors, and great variety and interest may be displayed by selecting the stock with care and with consideration for its figure possibility.

Norway pine is still considerably used for interior finish, though we are apt to think of it more to-day as an ornamental tree—more in the province of the landscape architect than the architect.

Pitch pine is an inclusive name applied in different localities to different

varieties of pine, though usually considered as including all those of a hard, resinous nature. The quantity of resin in pitch pine naturally renders it unsuitable for many kinds of work, and the variation in hardness between the summerwood and springwood causes uneven wear, if used in a floor, as well as general difficulty of working.

The soft white pine and the hard shortleaf, or yellow (also called "soft"), and the hard longleaf pines are the most suitable for use as interior finish and are the most generally used.

This and the previous papers cover, with necessary brevity, the woods native to America which are most adapted to use as interior finish. Much interesting data gave place to that which seemed most essential, and the intention throughout was to call to the attention of the practising architect the variety of native woods at his command—a variety in physical properties, in appearance, in adaptability, and in cost.

It is true that among the foreign woods there are many interesting possibilities as well—at much higher cost—with such materials as mahogany, teak, French and Circassian walnut, and Hungarian ash; but the architect, however, will find profit in giving attention to the consideration of the great problem of conservation of some of the finest native woods which future generations will require.



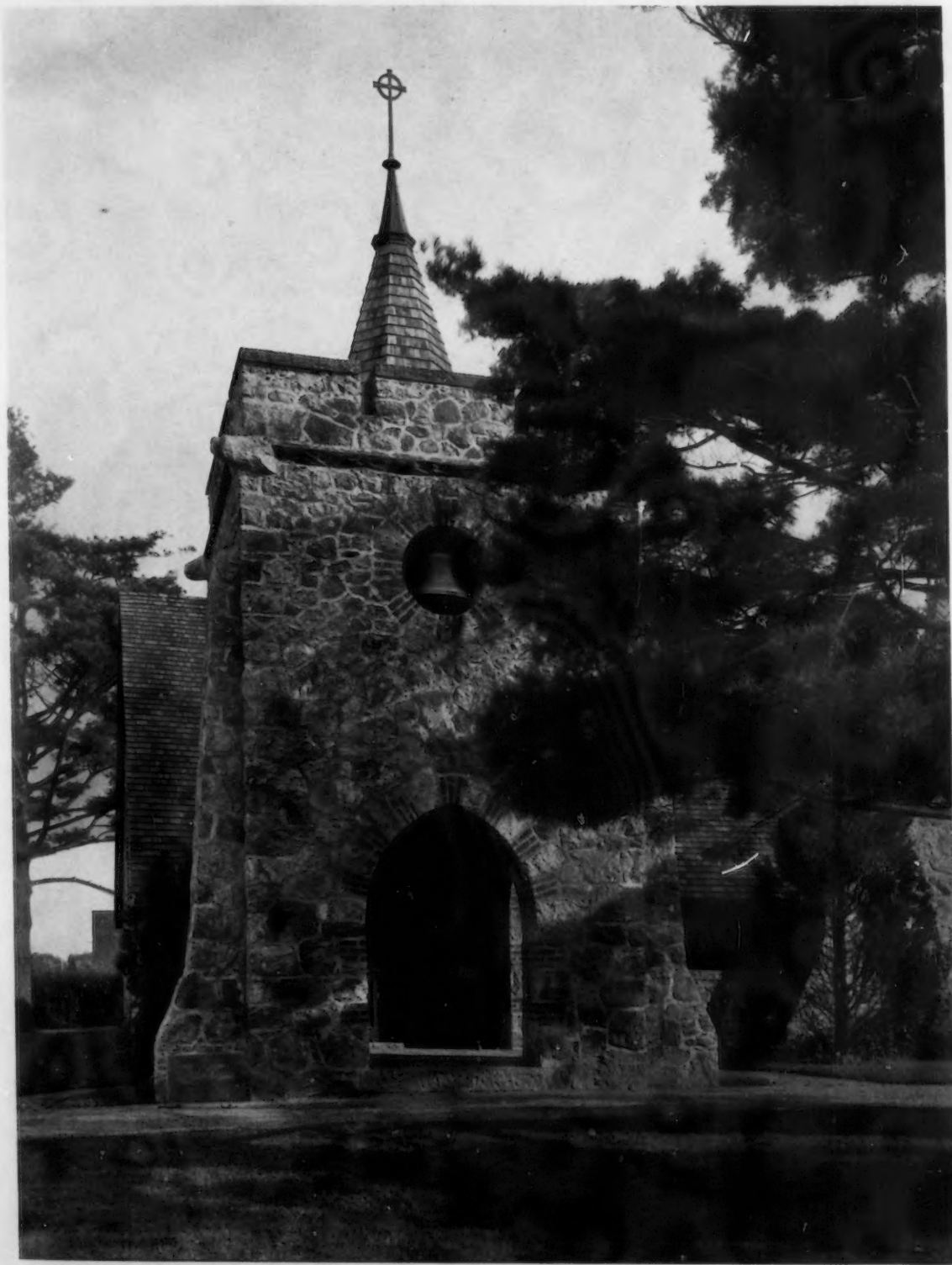
Straight Grain of Elm



Club Room Finished in Gray Elm, Cadillac, Mich.
The paneled room shown through the wide opening is
finished in western hemlock

✓
Episcopal Chapel at Westbury, Long Island.

JOHN RUSSELL POPE, ARCHITECT.

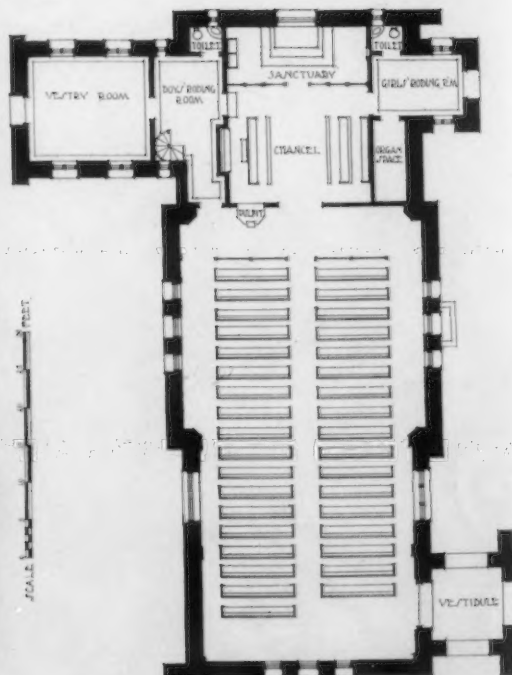




GENERAL VIEW OF EXTERIOR



ENTRANCE TO GIRLS' ROBING ROOM



GROUND FLOOR PLAN

EPISCOPAL CHAPEL AT WESTBURY, LONG ISLAND, N. Y.

JOHN RUSSELL POPE, ARCHITECT



EXTERIOR VIEW OF PARISH HOUSE



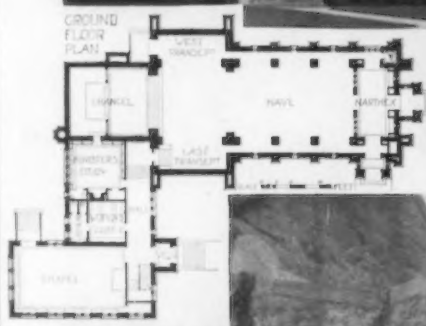
INTERIOR VIEW OF CHAPEL, LOOKING TOWARD CHANCEL

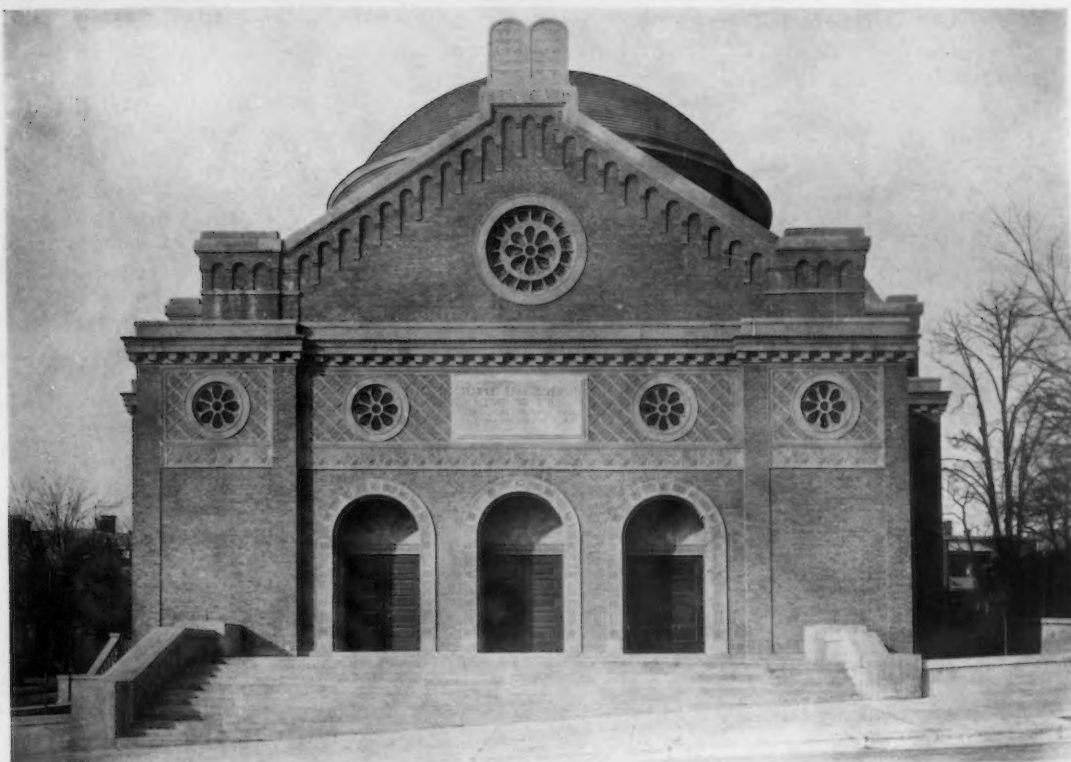
EPISCOPAL CHAPEL AND PARISH HOUSE AT WESTBURY, LONG ISLAND, N. Y.

JOHN RUSSELL POPE, ARCHITECT

Plymouth Congregational Church, Chicago.

RIDDLE & RIDDLE, ARCHITECTS.





B'Nai Jeshurun Temple, Newark, N. J.

ALBERT S. GOTTLIEB, ARCHITECT.

THE B'Nai Jeshurun Temple is placed on a plot approximately 100 by 225 feet, the narrow frontage being on High street and the long one on Waverly avenue, with an alley at the rear leading to Quitman street. The building sets back 25 feet on High street, but occupies the remainder of the plot. It faces east with the altar at the west end and the organ in a gallery at the east end.

The structure comprises the auditorium proper and the religious school building adjoining. The auditorium seats 1,600 people — 1,250 on the main floor and 350 in the galleries. The main entrance is from High street through three large doors leading to a main vestibule. Two smaller entrances are on Waverly avenue. There are six large openings for memorial windows, three on the Waverly avenue side and three on the opposite side of the auditorium. In the basement beneath the vestibule end are retiring rooms, lavatories, and coat rooms for men and women. Adjoining the altar are the trustee's room and a study for the rabbi.

To the west of the temple

and connected with it is the religious school building on Waverly avenue of three stories and a basement. It contains twelve class rooms for thirty pupils each, teachers' room, exhibition room, library, ladies' meeting room, and an assembly hall seating 380 people, and equipped with a stage and two dressing rooms at one end. In the basement of the school building are the coat rooms and

lavatories for boys and for girls, as well as a small kitchen and superintendent's office. The rear of the basement contains the heating and ventilating plant. The latter has been made a subject of special study. Fresh air is supplied to the temple auditorium through a series of ducts under the floor and withdrawn through a large duct around the base of the dome. The air passes over air washers before entering the building. All the air in the auditorium can be renewed four times in an hour. A vacuum cleaner is also installed.

The base courses and steps on the exterior are of stone. The walls are faced with light brown brick of rough texture with terra cotta trimmings of



View showing School Building

the same color. All copings are Indiana limestone, and the dome and sloping roofs are covered with gray-green terra cotta tiles, the whole making a restful color scheme.

The interior walls, arches, and dome of the temple are covered with acoustic tile. The architectural ornamentation is in terra cotta of a soft brown color, and all woodwork is of a similar tone to accord with the tone of the tile which is the dominating material. The ark on the altar is of Taverne marble, and a red Italian marble is used for the base around the auditorium. The floors of aisles and altar are of cork tile.

Special consideration was given to the question of acoustics and the plans were submitted at an early stage to Professor Wallace C. Sabine, who has given the study of acoustics much attention and who advised the use of acoustic tile for the walls of the auditorium. The result is most satisfactory. A speaker using a normal tone of voice can be distinctly heard in any

part of the auditorium and without any trace of an echo or reverberation.

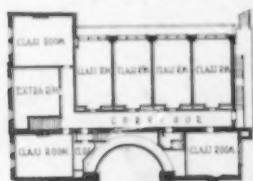
The lighting is by electricity with indirect or concealed fixtures. The main portion of the auditorium is illuminated by powerful lamps and reflectors in a six pointed, star shaped fixture suspended from the center of the dome.

The entire building is fireproof; furthermore, each floor of the school building is supplied with a standpipe and fire hose. It is said that the insurance rate is the lowest on any religious building in the country, it being about nine cents per hundred.

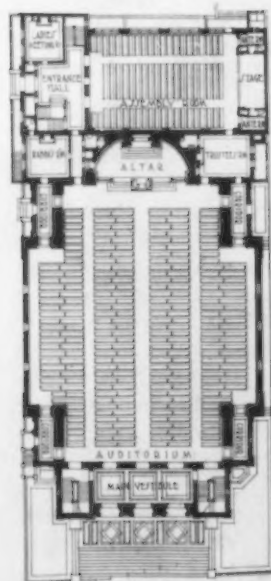
The cost of the structure including all furnishings, except those of the school building, was about \$275,000. The entire group contains about 1,000,000 cubic feet. The height from the sidewalk to the top of the dome is 95 feet, and through a well developed scale, evident in both façades, the building admirably fits its site. It is an interesting expression of synagogue architecture.



View showing Organ and Gallery at East End



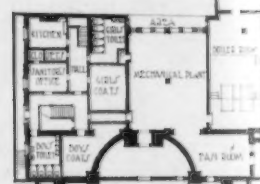
Third Floor Plan



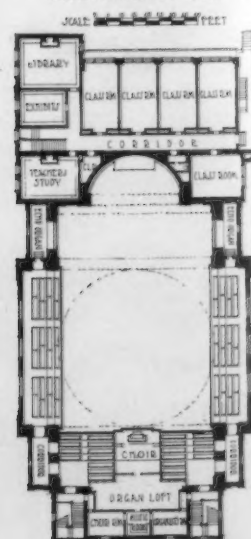
Main Floor Plan



Detail of Interior Wall at West End



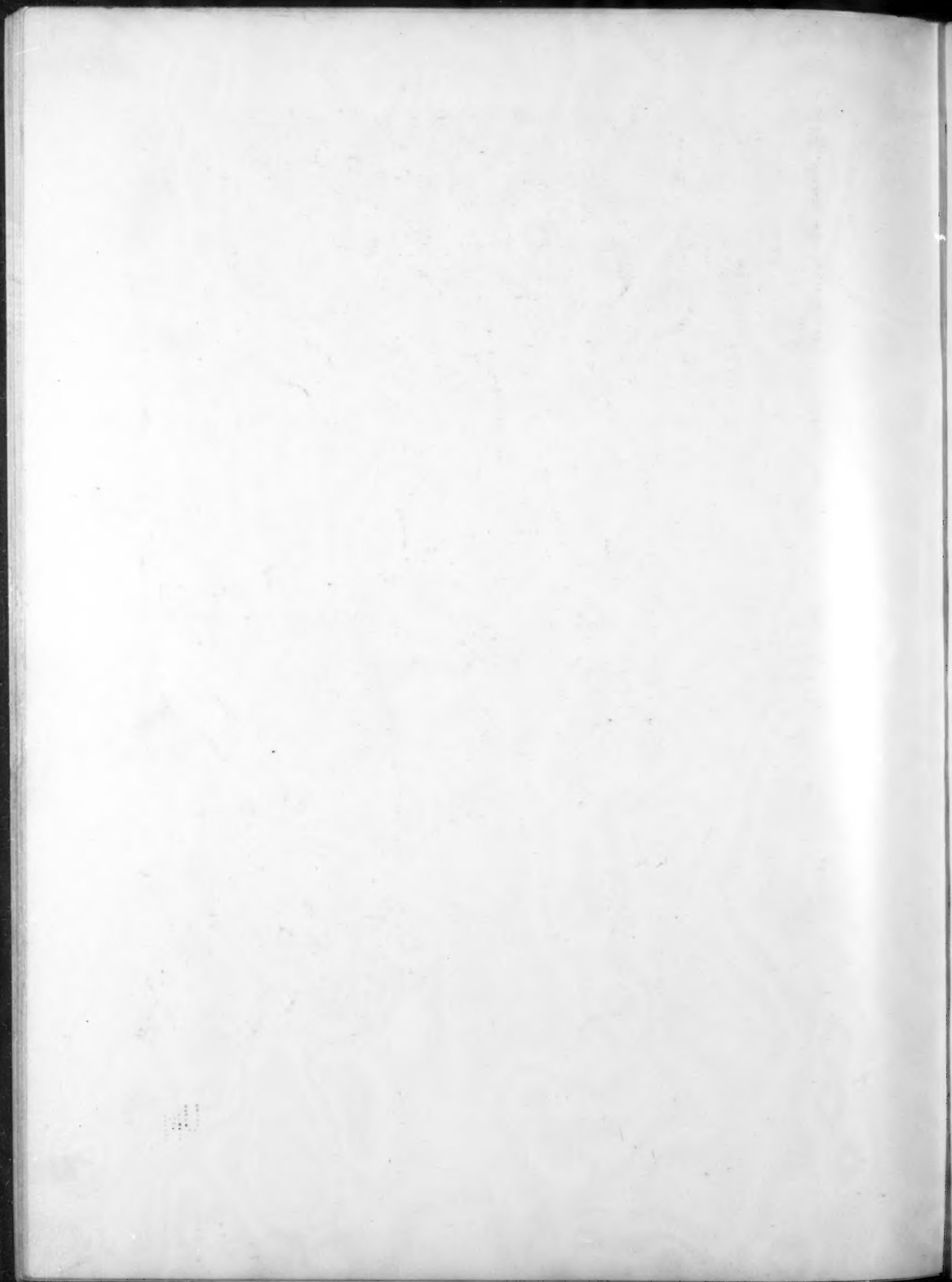
Basement Floor Plan

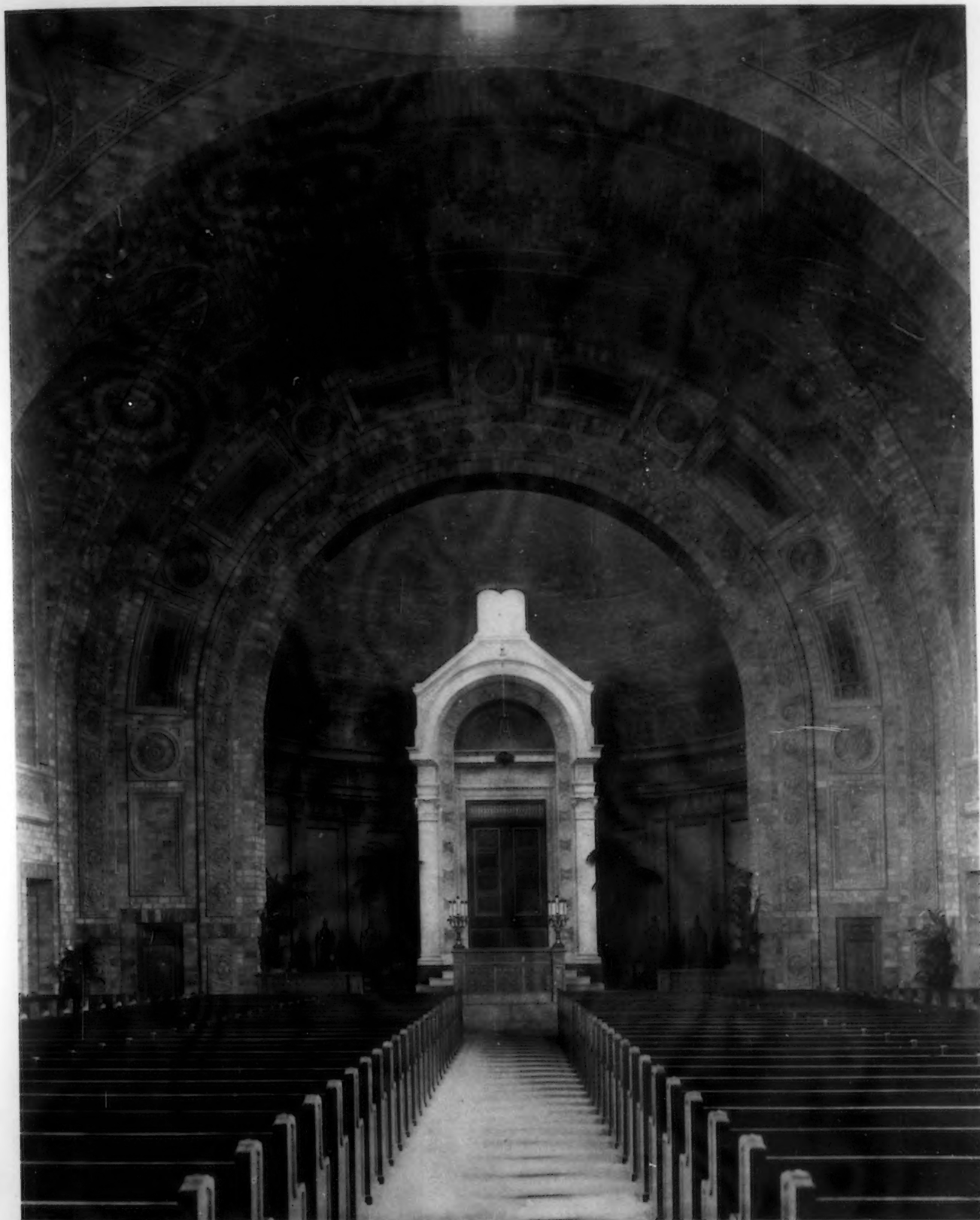


Gallery Floor Plan



B'NAI JESHURUN TEMPLE, NEWARK, N. J.
ALBERT S. GOTTLIEB, ARCHITECT





INTERIOR VIEW LOOKING TOWARD ALTAR

B'NAI JESHURUN TEMPLE, NEWARK, N. J.

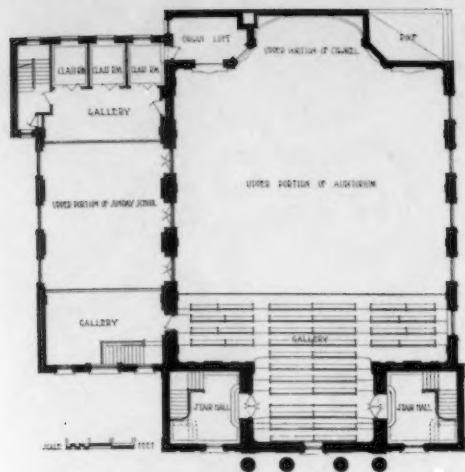
ALBERT S. GOTTLIEB, ARCHITECT

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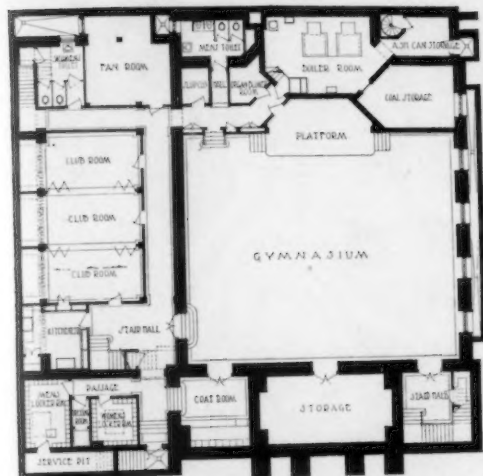


WEST PARK PRESBYTERIAN CHURCH, WEST 174TH STREET, NEW YORK, N. Y.
CARRERE & HASTINGS, ARCHITECTS

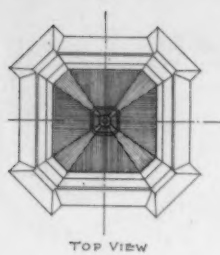




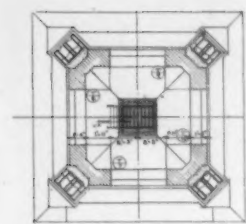
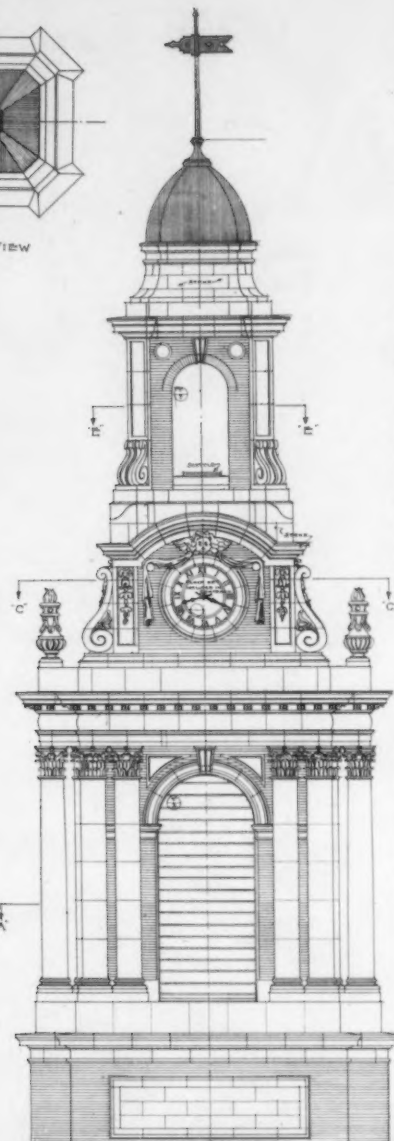
GALLERY FLOOR PLAN



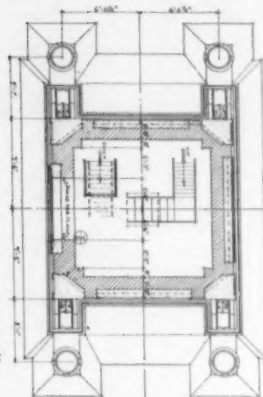
BASEMENT FLOOR PLAN



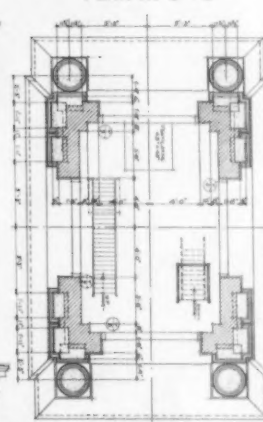
TOP VIEW



PLAN AT E-E



PLAN AT C-C



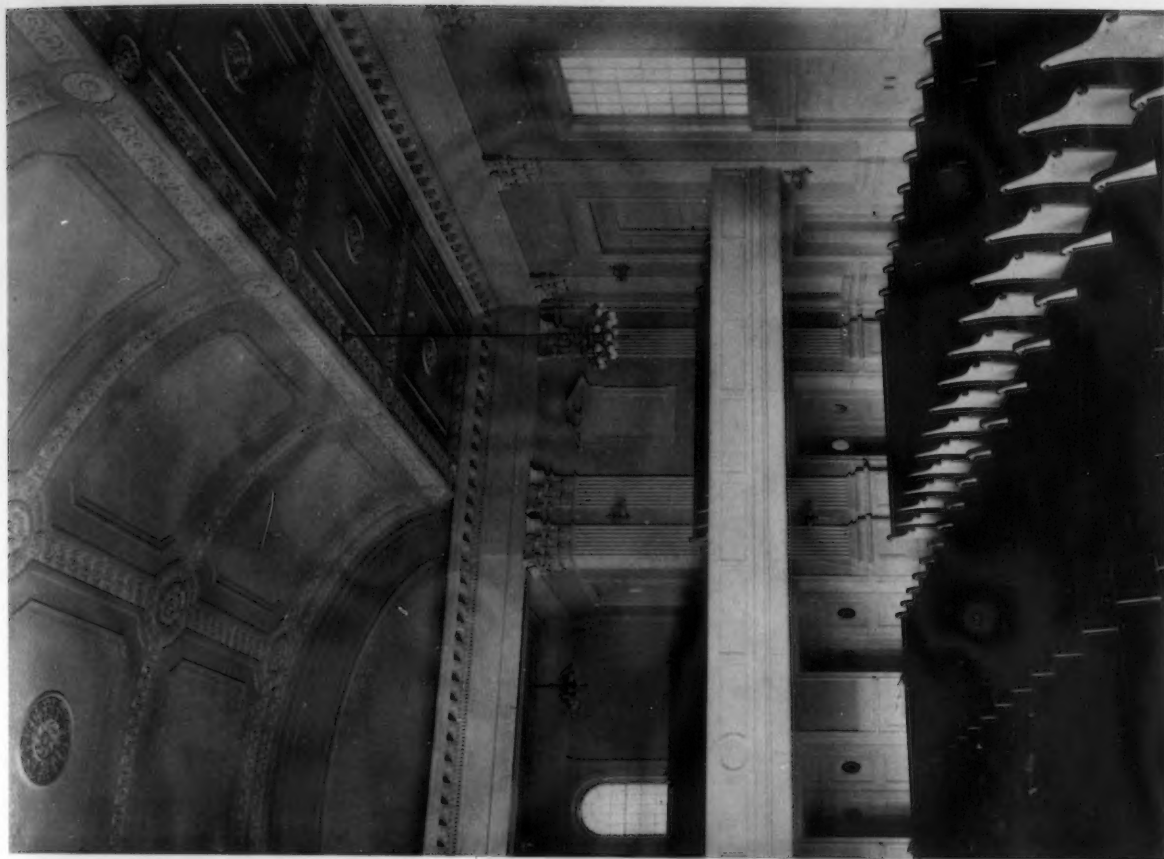
PLAN AT A-A



WEST PARK PRESBYTERIAN CHURCH, WEST 174TH STREET, NEW YORK, N. Y.

CARRERE & HASTINGS, ARCHITECTS





INTERIOR VIEW LOOKING TOWARD GALLERY



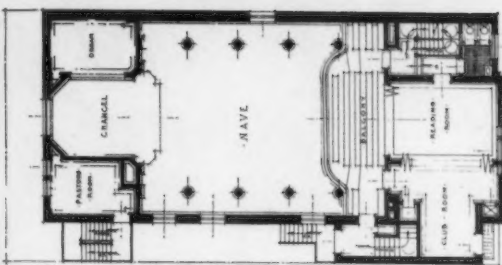
INTERIOR VIEW LOOKING TOWARD CHANCEL

WEST PARK PRESBYTERIAN CHURCH, WEST 174TH STREET, NEW YORK, N. Y.
CARRERE & HASTINGS, ARCHITECTS

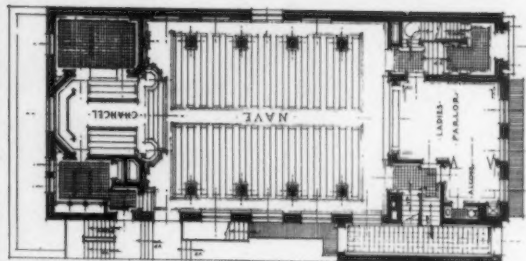




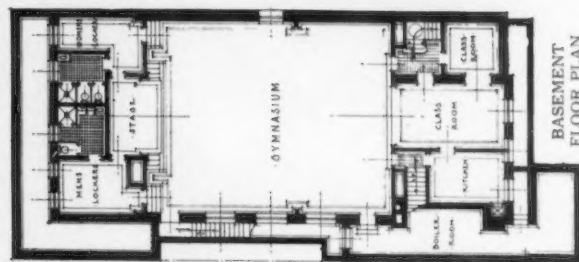
INTERIOR LOOKING TOWARD CHANCEL



BALCONY FLOOR PLAN



GROUND FLOOR PLAN



BASEMENT FLOOR PLAN

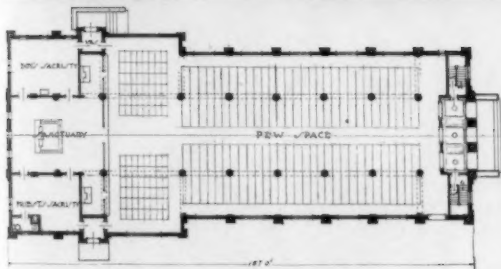


VIEW OF PRINCIPAL FACADE

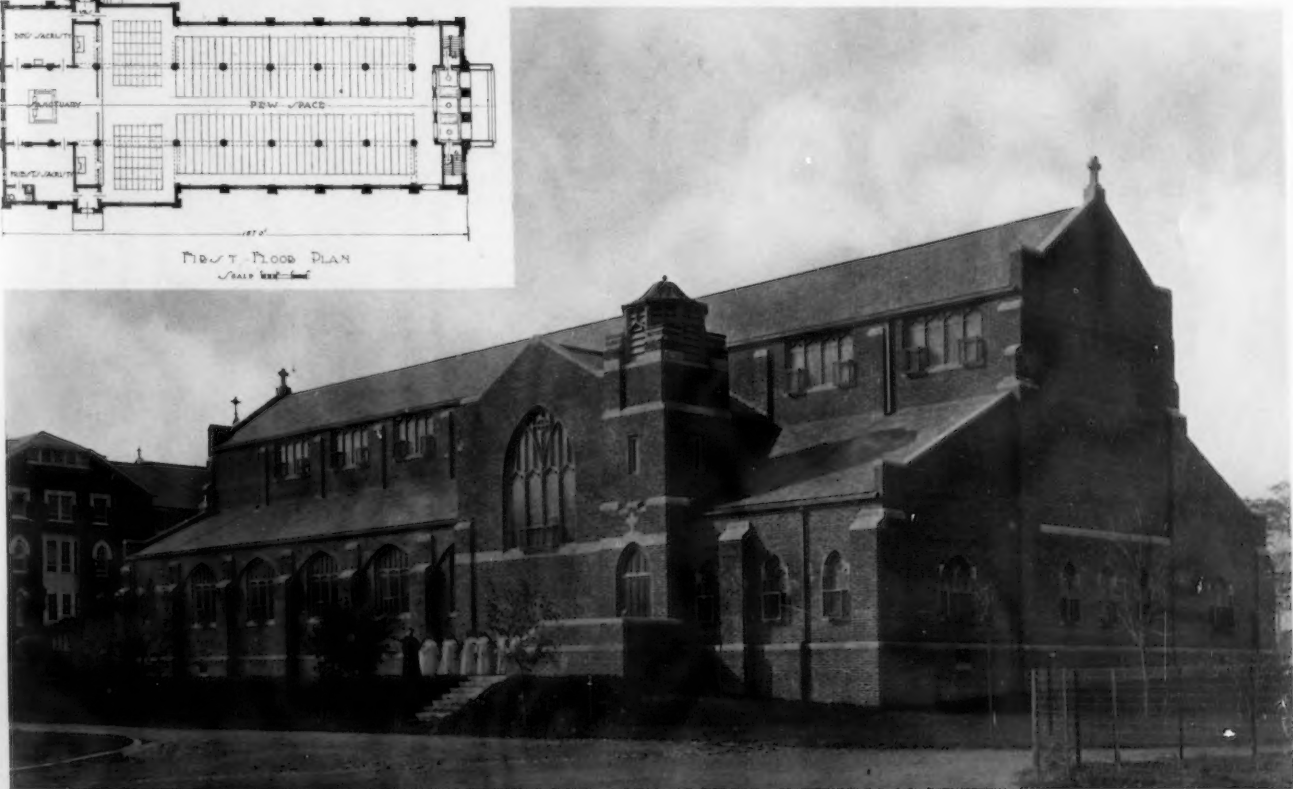
ST. JAMES' PRESBYTERIAN CHURCH, WEST 137TH STREET, NEW YORK, N. Y.

LUDLOW & FEABODY, ARCHITECTS

100

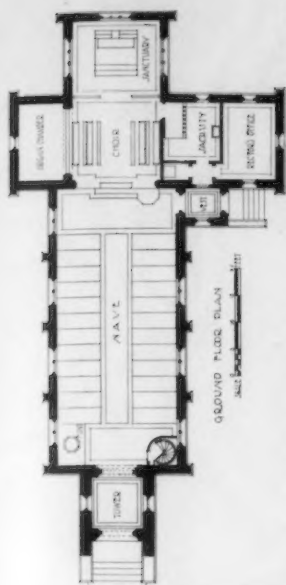


FIRST FLOOR PLAN
SCALE 1/8" = 1'-0"



CHAPEL OF THE DOMINICAN SISTERS OF ST. AGNES, SPARKILL, N. Y.
DAVIS, McGRATH & KIESSLING, ARCHITECTS

1871
1872
1873
1874
1875

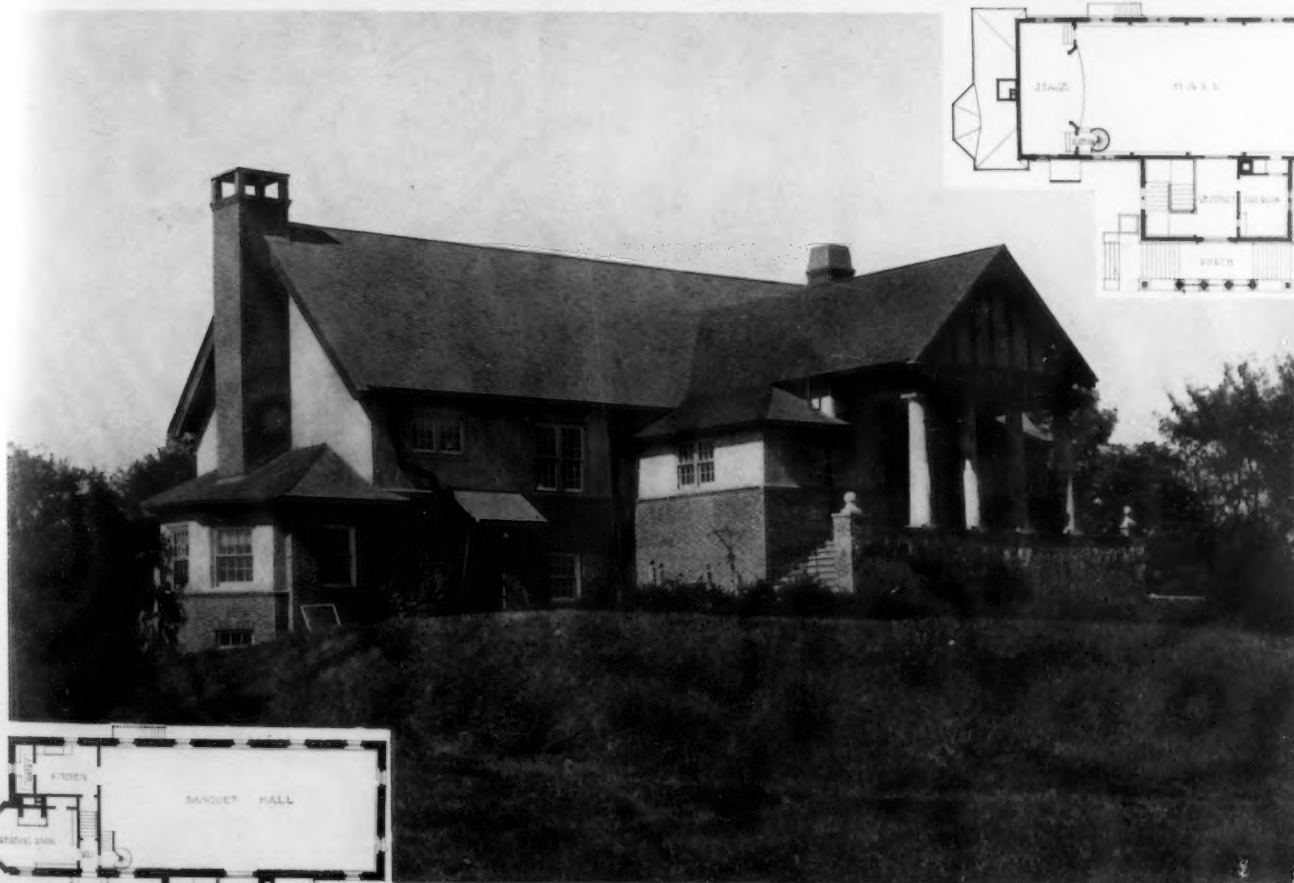


ALL SAINTS' EPISCOPAL CHURCH, WEST NEWBURY, MASS.
CLARK & RUSSELL, ARCHITECTS

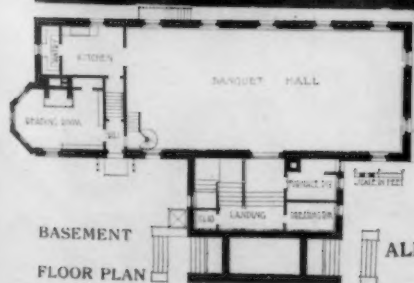
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SIDE VIEW OF ALL SAINTS' CHURCH

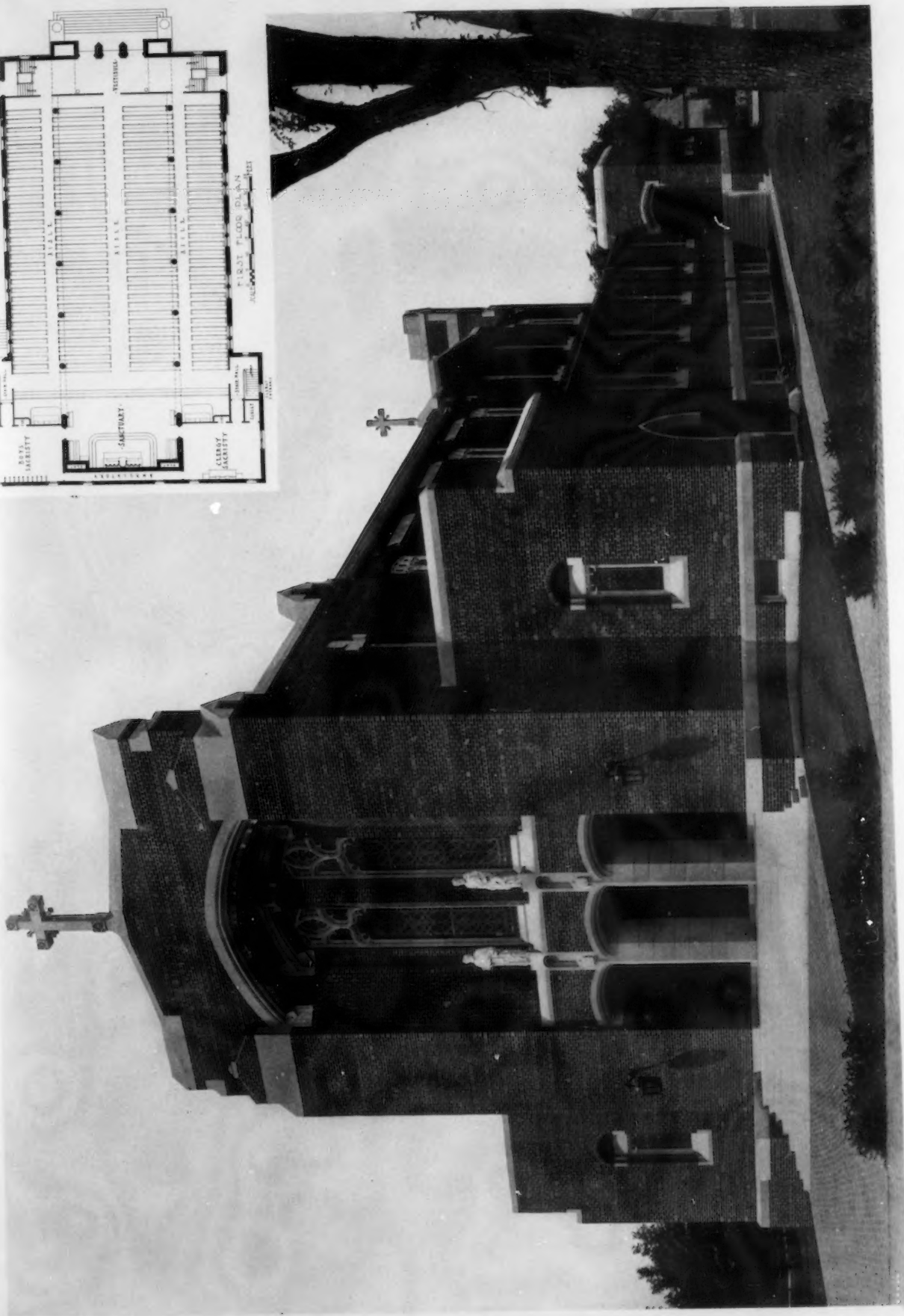
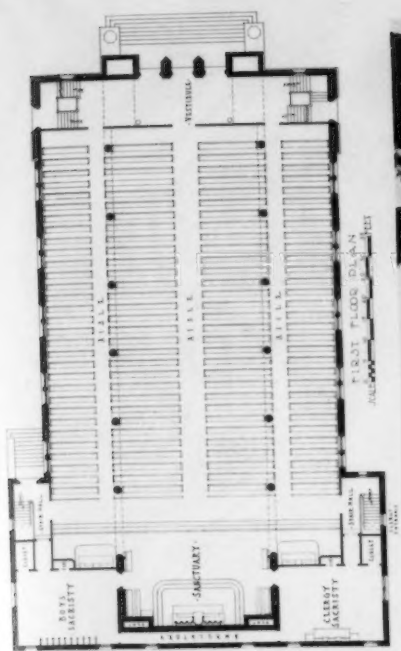


VIEW OF PARISH HALL FROM CHURCH



ALL SAINTS' EPISCOPAL CHURCH AND ST. JOHN'S PARISH HALL, WEST NEWBURY, MASS.
CLARK & RUSSELL, ARCHITECTS



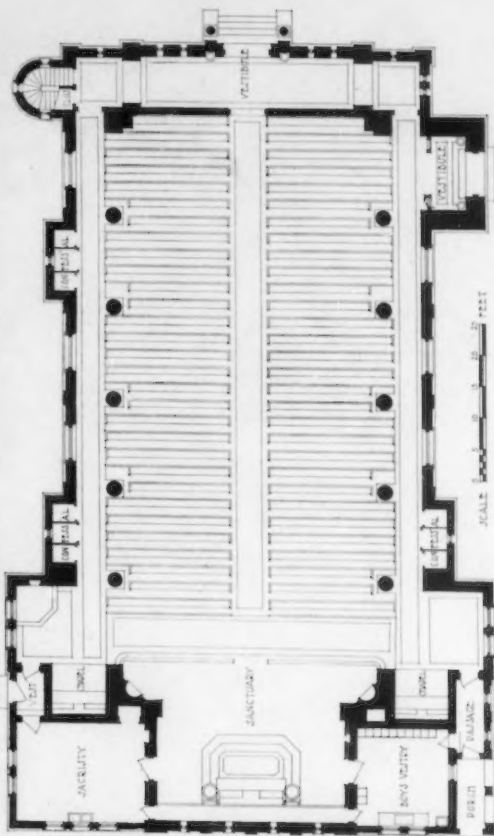


ST. MARK'S ROMAN CATHOLIC CHURCH, DORCHESTER, MASS.
BRIGHAM, COVENEY & BISBEE, ARCHITECTS

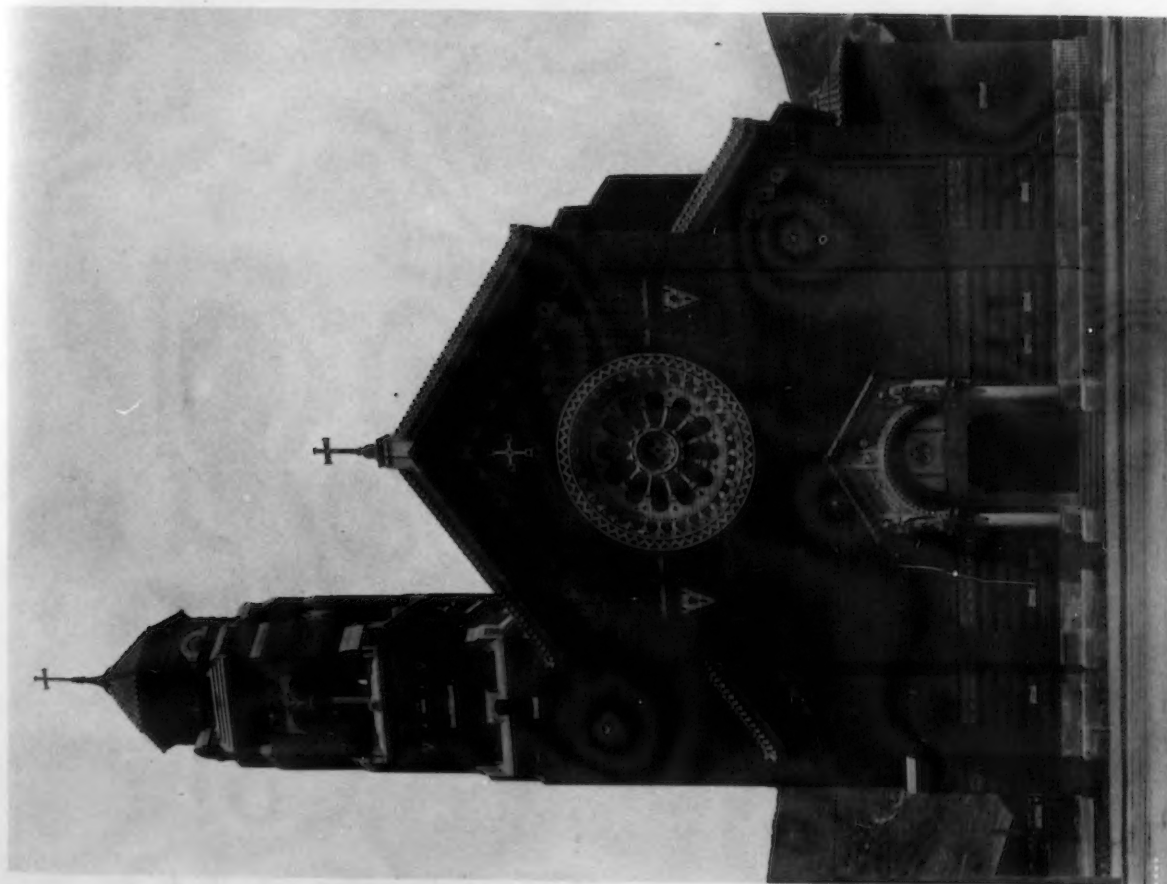




INTERIOR VIEW LOOKING TOWARD ALTAR



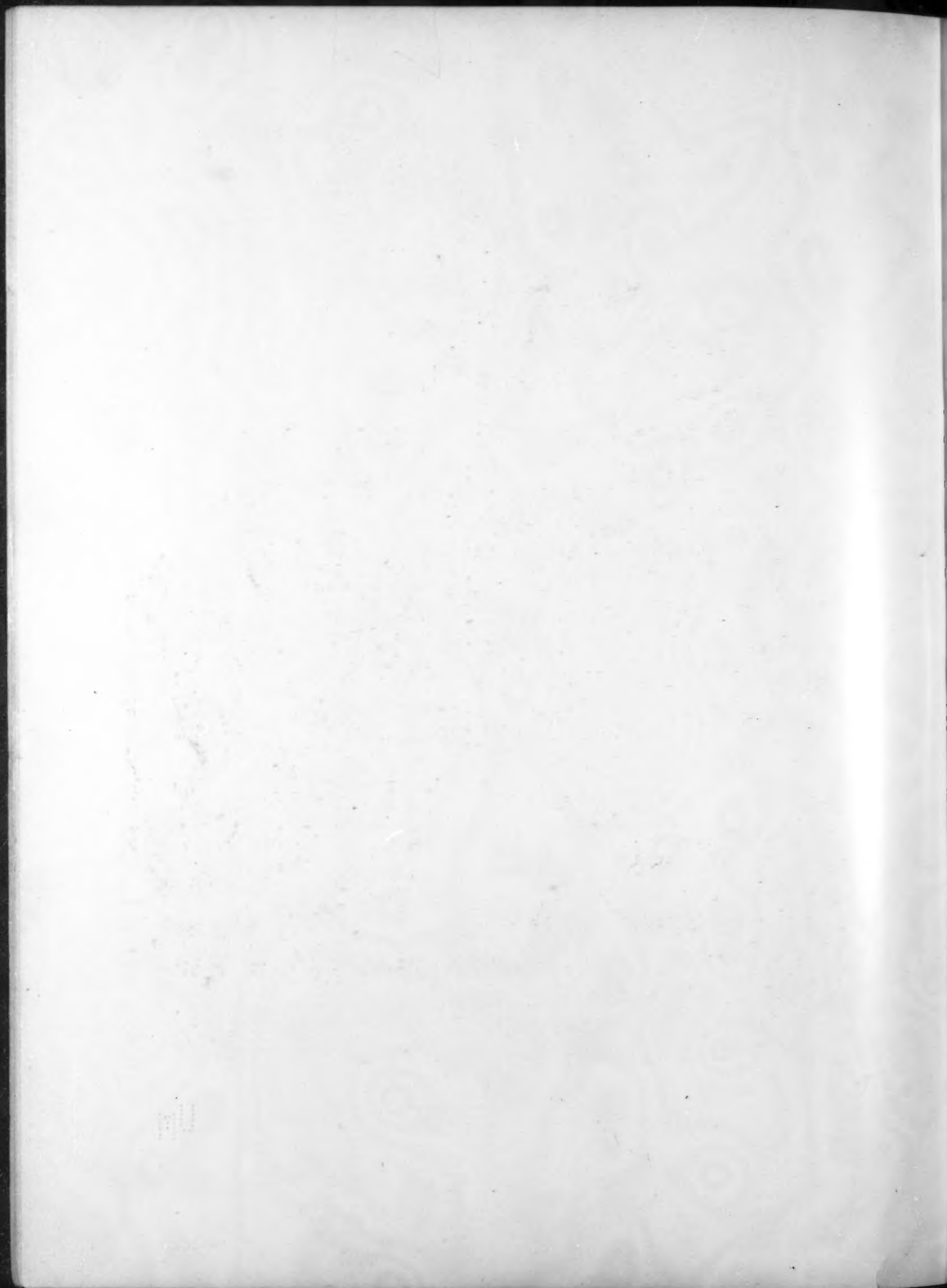
GROUND FLOOR PLAN



VIEW OF PRINCIPAL FACADE

ST COLUMBA'S ROMAN CATHOLIC CHURCH, JOHNSTOWN, PA.

JOHN T. COMES, J. E. KAUZOR, ASSOCIATE ARCHITECTS





BAPTIST MEMORIAL CHURCH, TWICKENHAM, ENGLAND
INGALL, BRIDGEWATER & PORTER, ARCHITECTS

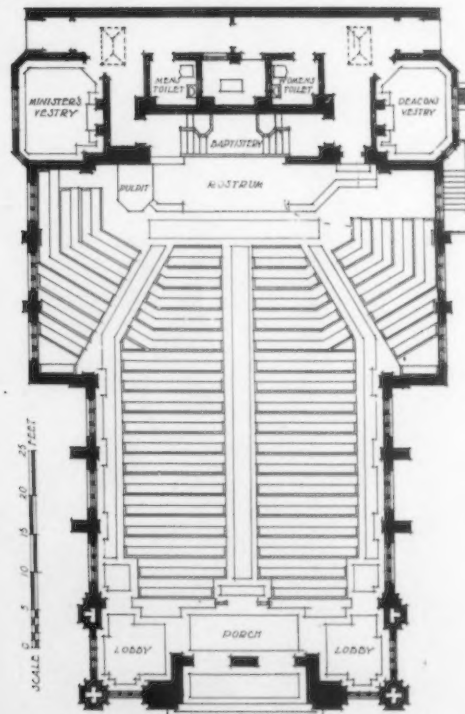




INTERIOR VIEW LOOKING TOWARD ROSTRUM



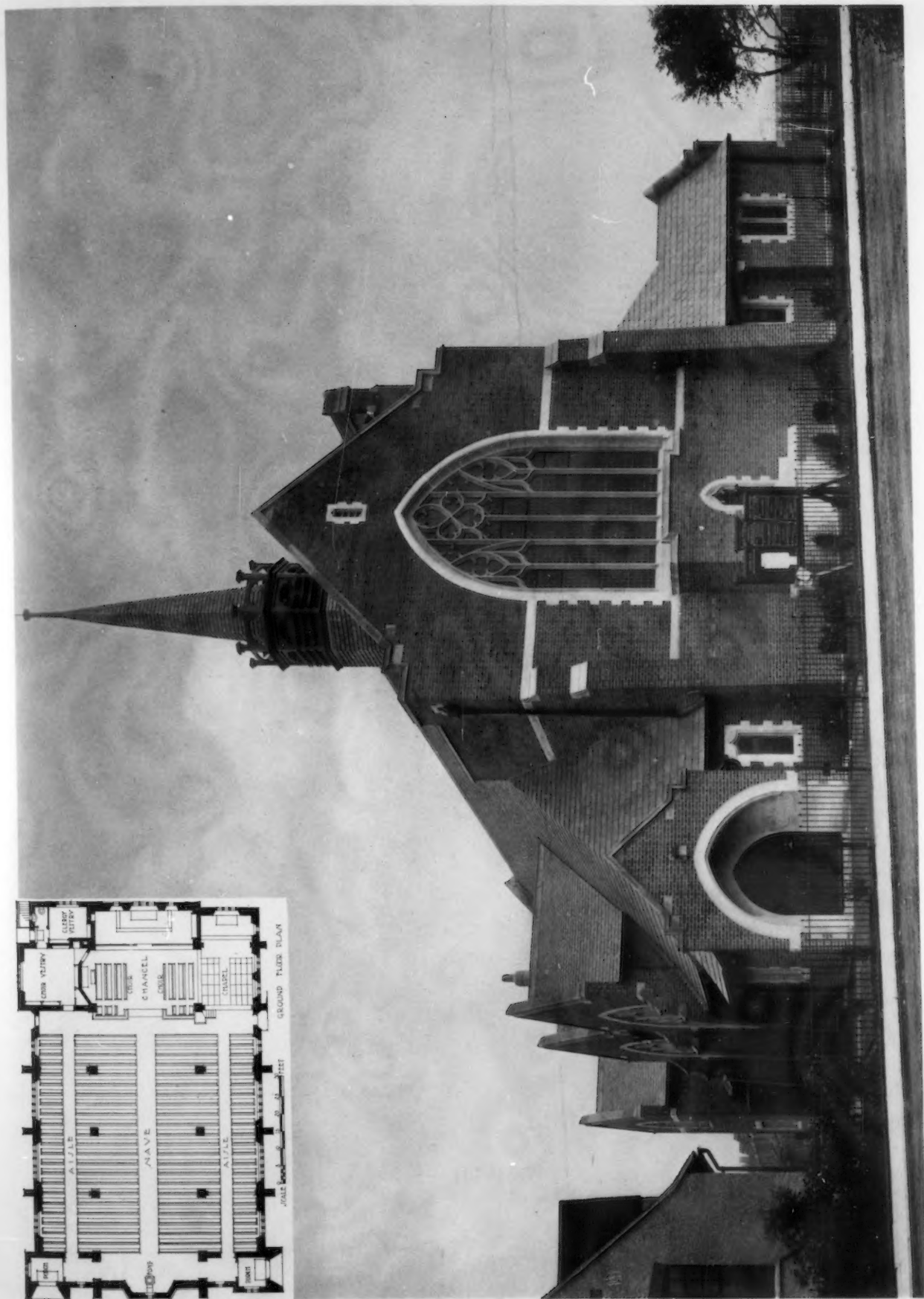
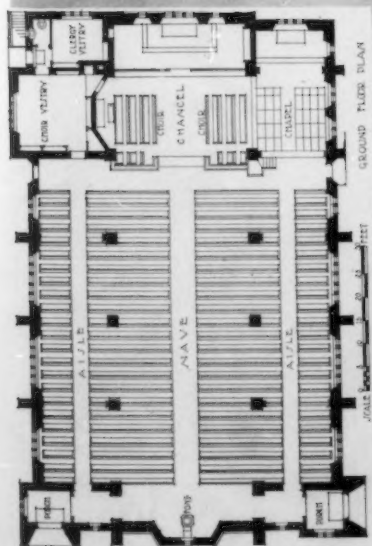
INTERIOR VIEW LOOKING TOWARD ENTRANCE



GROUND FLOOR PLAN

BAPTIST MEMORIAL CHURCH, TWICKENHAM, ENGLAND
INGALL, BRIDGEWATER & PORTER, ARCHITECTS





ALL SAINTS' CHURCH, GOODMAYES, ESSEX, ENGLAND
P. K. ALLEN, ARCHITECT

100



VIEW OF EXTERIOR FROM REAR



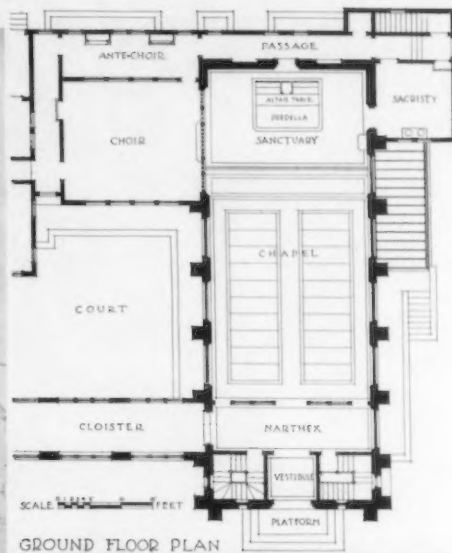
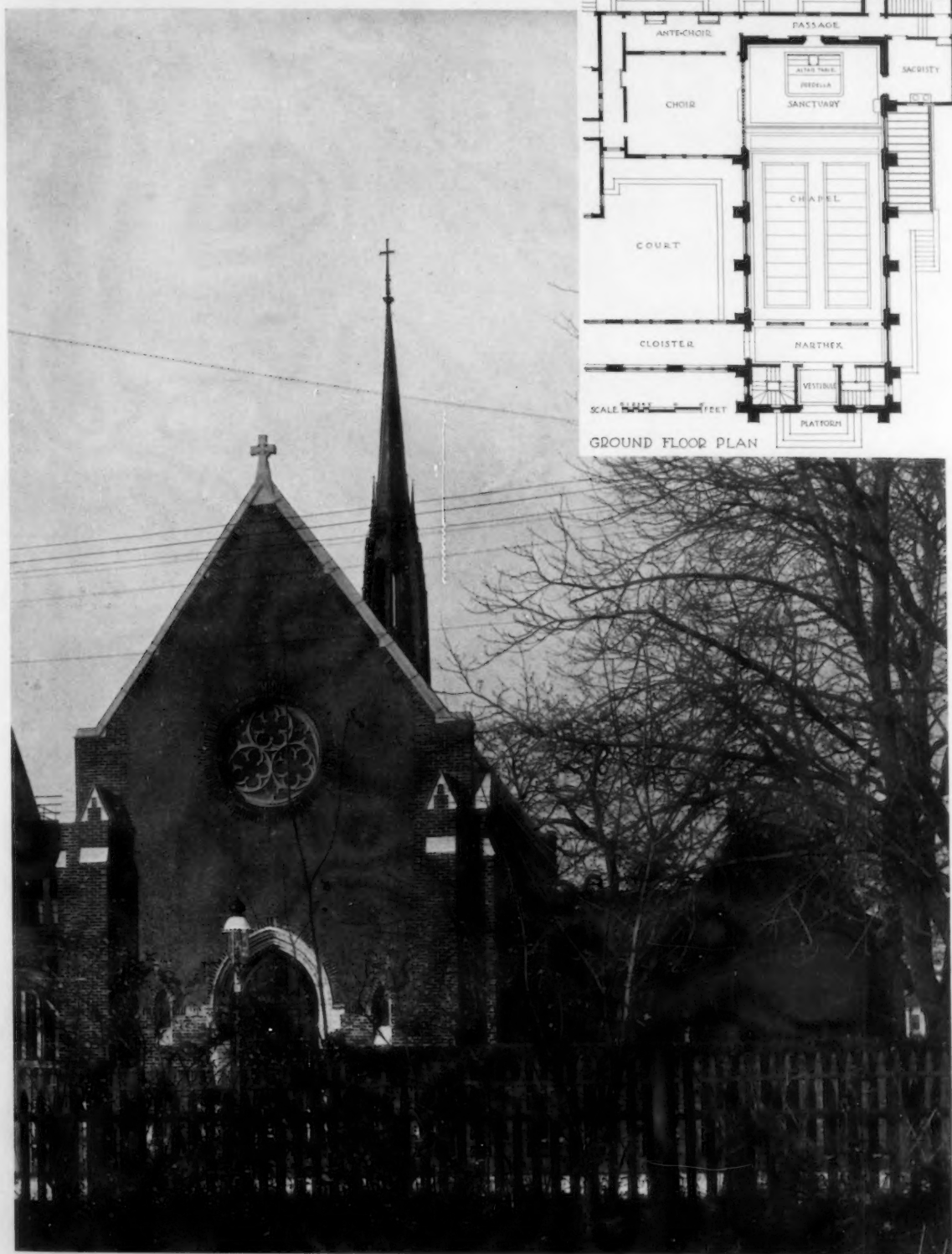
INTERIOR VIEW LOOKING TOWARD CHANCEL

ALL SAINTS' CHURCH, GOODMAYES, ESSEX, ENGLAND
P. K. ALLEN, ARCHITECT



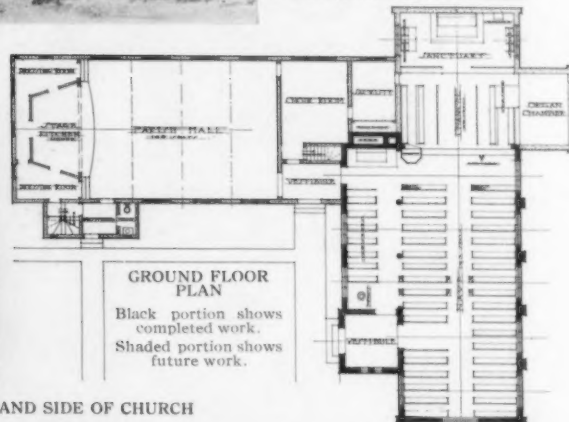
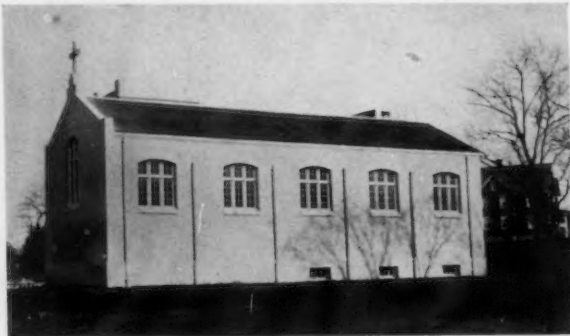
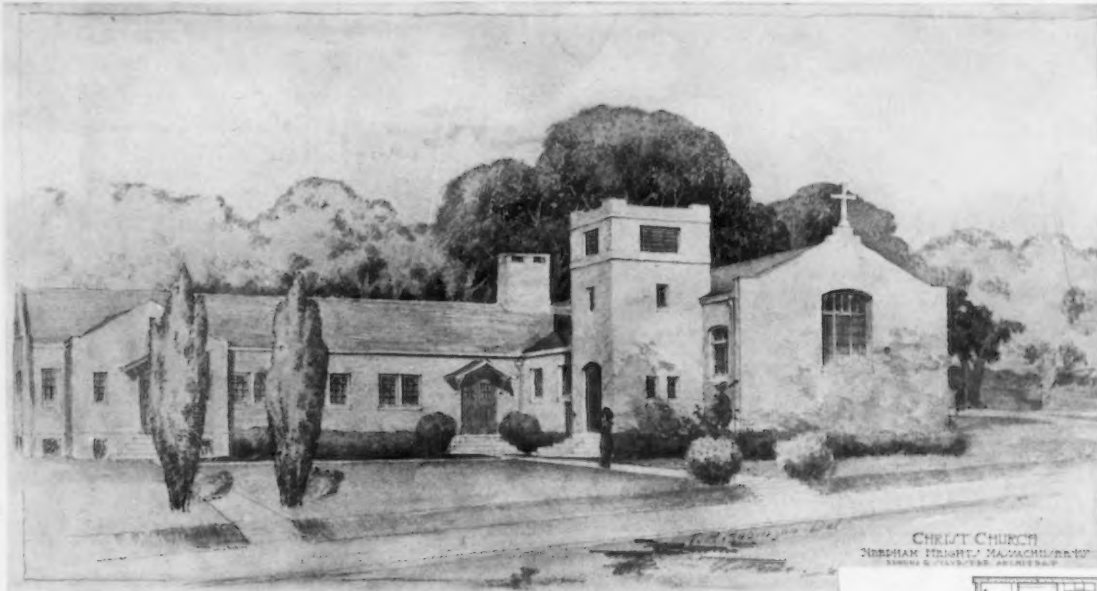
✓ Chapel for the Ladies of the Cenacle, Newport, R. I.

MAGINNIS & WALSH, ARCHITECTS.

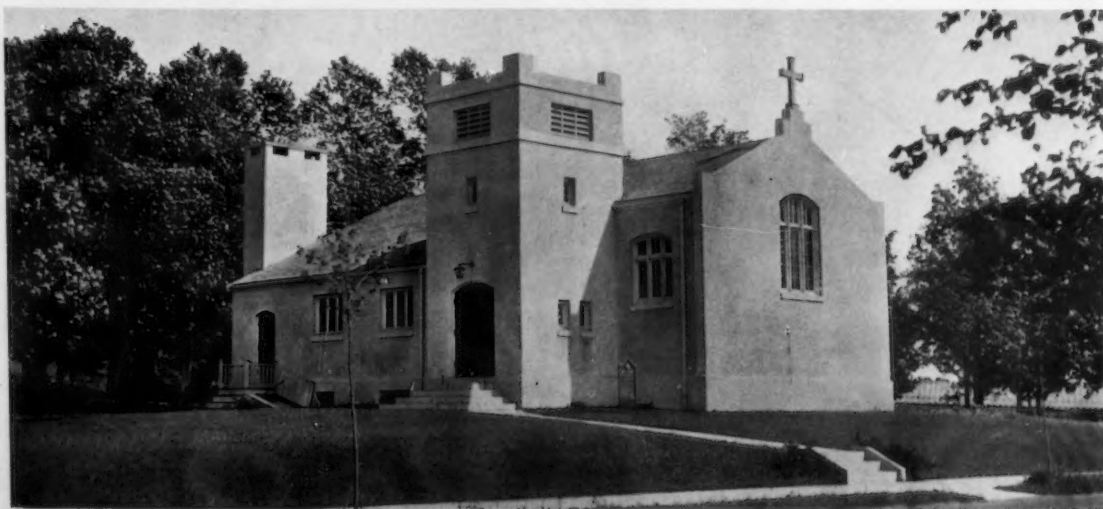




ROMAN CATHOLIC CHAPEL, NORTH WEYMOUTH, MASS.
CHARLES R. GRECO, ARCHITECT



PERSPECTIVE DRAWING OF COMPLETED GROUP AND SIDE OF CHURCH

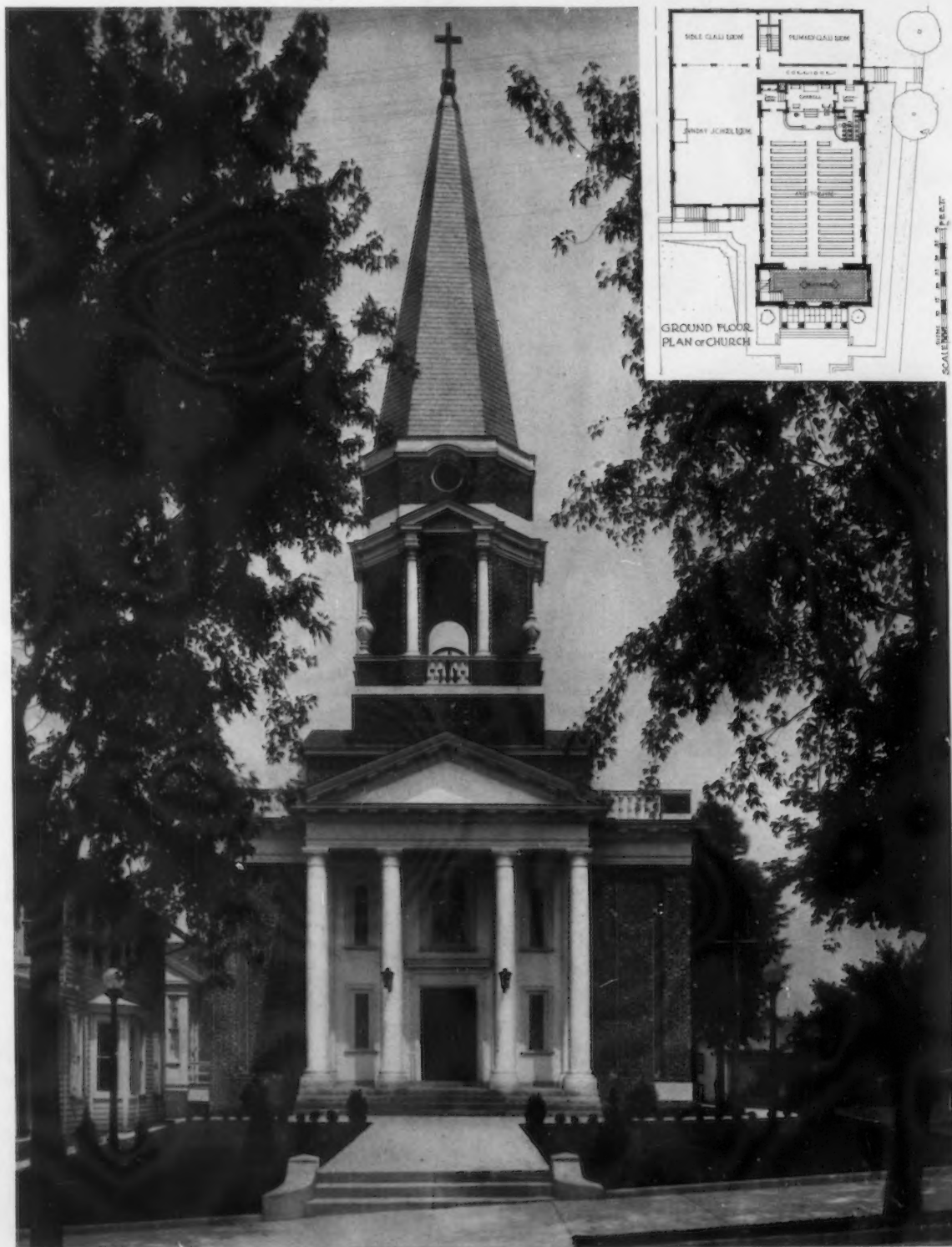


VIEW OF PORTION CONSTRUCTED

CHRIST EPISCOPAL CHURCH, NEEDHAM HEIGHTS, MASS.
EDMUND Q. SYLVESTER, ARCHITECT

Bethany Reformed Church at Ephrata, Pa.

FRANK SEEBURGER AND CHAS. F. RABENOLD, ASSOCIATE ARCHITECTS.



The Heating and Ventilating of Churches.

By HAROLD L. ALT.

THE ventilation problem in the modern church presents many angles for consideration, not the least of which is the fact that numerous churches are laboring under heavy debt and are, therefore, not at all anxious to spend any larger sum on the heating and ventilation end than is absolutely necessary. Added to this is the difficulty that some churches try to economize by standing cold during the week and heating up on Sunday only — a mistaken and dangerous policy.

The masonry construction of most churches, especially edifices built some time ago, is usually much heavier than that of a corresponding theater of equal size and this results in extreme heat absorbing capacity when churches once get cooled down.

Another consideration, and a most essential one, is that of noise, many churches having given up their ventilation equipment in disgust on account of not being able to use their systems during services owing to the objectionable noise.

Therefore, a heating and ventilating system to give the utmost satisfaction possible should combine (with all the other usual desirable qualities) a low first cost, a minimum amount of noise in operation, great capability of quick heating, and still must be simple enough to be operated by more or less non-expert janitors.

Owing to the auditorium-like arrangement there is no need of the individual duct system in the ordinary church, since the air from all sides of the building intermingles almost at once and forms a fairly equal temperature at various heights above the floor; for the same reason the double duct system need not be considered. In fact, the trunk line system seems to supply every needed function, being at the same time cheaper and simpler than either the individual or double duct system.

For the small or moderate sized country and suburban church the modern furnace has much to recommend it, many manufacturers paying particular attention to this sort of work. In the first place, it is absolutely quiet in operation, does not require any expert knowledge to run, cannot freeze up during the week, and supplies enough fresh air to meet moderate ventilation requirements. A recirculation connection combined with a carefully designed furnace equipment of this sort is a very practical solution of certain church requirements.

In a large modern city church, which is the style of building with which this article particularly deals, the limitations of satisfactory furnace installations are exceeded and some form of hot blast or fan system should be substituted.

Assuming the trunk line type of system has been settled upon for a large modern city church, the next point to be taken up is the location of inlets and outlets. A hot air inlet in the aisle is objectionable on account of its being constantly walked over (thus receiving an excessive amount of dust), its poor distribution of the entering air (even when two or three such registers are used), and its unpleasant effect on the persons walking over it. Neither

are hot air inlets under the pews satisfactory, since they result in discomfort to persons sitting directly over them when the temperature is high and must force more or less of their air through and around the clothing worn by the members of the congregation before this air rises to the breathing line.

Neither, on the other hand, do inlet registers in the ceiling and the use of downward ventilation entirely rid us of all our troubles, as the unusually high windows (present in most churches) result in very strong cold drafts downward, falling on those seated beneath such windows. All things considered, the most satisfactory location of inlet openings is in the window sills when the incoming warm air counteracts the cold down drafts resulting in a tempered mixture of atmosphere which is thrown outward toward the center of the congregation.

There is no objection to exhausting from outlets located beneath the pews and this avoids the exposing to view of large exhaust registers which would otherwise appear in the walls or ceiling. In fact, when the window sill inlet is used, better results are obtained with floor exhaust outlets than with openings in the ceiling. This is apparent from the fact that the natural flow of air from the window sill inlet toward the ceiling outlet would not cross the breathing line of a single member of the congregation.

A cross section showing just such a window sill inlet and pew outlet is given in Fig. 1; both the supply and exhaust ducts in this particular case are run on the ceiling of the basement below.

Some systems only deliver supply air and let it find its way out through natural leakage. It does not seem, however, that it is reasonable to expect more than one, or at the utmost two, air changes per hour to find egress by this method. If more air (as is usually the case) is being supplied than two changes per hour, some provision should be made for taking care of the additional air furnished.

Many architects object to a radiator exposed to the view of the congregation, a much simpler expedient being the installation of a few additional rows of heaters at the fan and to warm as well as ventilate. This method involves the advantages of eliminating all the radiators together with their steam and return piping, which would otherwise run promiscuously around the basement, and also cuts the first cost.

Practical trial, however, has developed several severe and radical failings in a purely hot blast system used without direct radiators. One of these is the well known fact that while a hot blast system is at best rather slow in warming up a cold building (even with recirculation), the heavy walls of a church absorb so much of the first heat delivered to the room that a hot blast system otherwise perfectly adequate will have to begin operation Saturday afternoon to bring a cold building up to 70 degrees by 10 A.M. Sunday morning. This causes a jump in the electric power bill during cold weather that is nothing less than startling.

Another disadvantage is the inability to warm any room during the week without starting up the whole system and running the large fan. To some extent this may be overcome by a more or less complicated system of dampers, but can never compare in economy with the use of direct radiators for heat alone, and the blast system solely for ventilation effect.

The drawings shown in Figs. 2 and 3 are the basement and first floor plans of a church built a few years ago in which the hot blast system is used in general without radiators.

This system was carefully designed in the extreme, flues being run to supply each class room individually so that the doors of the class rooms could be shut, if desired, and ventilation still carried on.

The air was vented through the roof by means of two ventilators, one over the Sunday-school room and the other over the church. In the societies' room S, where the air supplied amounted to more than would be lost through natural leakage, a vent X was cut through into the church to allow a relief of the back pressure which might otherwise be created in the confined room. This hot blast system was most carefully figured and installed by engineers co-operating with the architect, and everything to make the system a success, which could be done, was done. In spite of this, as might be expected, the objections previously mentioned were found to exist in this installation. While a recirculation connection R (Fig. 3) was provided in the cold air down take from the roof so that the outside cold air could be shut off and that in the church revolved over and over again and ventilators V provided, it was found impossible to let the building get cooled down during the week and then heat it up on Sunday morning.

By starting Saturday afternoon and recirculating the air, the original 40-degree temperature (to which the interior of the church often fell during the week) could be raised up to about 60 degrees before shutting down for the night. During the night the temperature would drop back to somewhere around 52 degrees, and by starting up at 6 A.M. Sunday morning, it was possible to get as high as 65 degrees by 10.30 A.M. Continued operation during the day even in extreme weather shoved the thermometer up above 70 degrees before evening, showing that the apparatus was amply able to maintain a proper temperature as soon as the walls ceased absorbing large quantities of heat.

To those who might say the apparatus should be increased, I would answer that this increase must amount to at least 100 per cent over that already installed, since it would be necessary to accomplish the same heating effect (minus the drop during the night, of course) in about one-half of the time at present required.

To those claiming the building should be kept warm during the week, I would answer that this would entail a total of more hours of fan operation per week as well as additional coal, thereby increasing not only the coal expense, but the power bill as well.

Let us turn away from the combined hot blast heating and ventilating system and see what results are attained when the warm air is used solely for ventilation effect and the heating accomplished by direct radiators.

In the first place, this means that steam supply and return pipes must be run practically all over the basement as well as the galvanized iron pipes used for the ventilating system, and that these pipes must be arranged so as not to interfere with each other. It also means a slightly higher first cost, this not being as much of an increase as might be expected, owing to the fact that the fan heater can be reduced to about 50 per cent of the capacity otherwise required, besides which it is also unnecessary to provide a recirculation connection.

The advantage of heating positively all rooms regardless of direction of the wind or their isolated location, is obtained only with this system. By the simple expedient of valving each riser, and, possibly, two or three points

in the mains, this heating can be accomplished without warming up the whole system and without the expenditure of any electric power whatsoever.

Moreover, no power need be used to operate the fresh air system until the congregation is fully assembled, and

often in bad weather when the attendance is small there is no discomfort experienced for an hour or so without operating the fan at all. With a proper amount of direct radiation installed it is possible to warm up a building in four or five hours, and the maintaining of a small fire under the boiler during the week will generate sufficient vapor to keep the building temperature from going down to a very low point, making it much easier to heat up than without the direct radiation.

As far as gravity air systems with the air in the flues heated by indirect steam or hot water radiators are concerned, they are *naturally* unsuited for church work. They

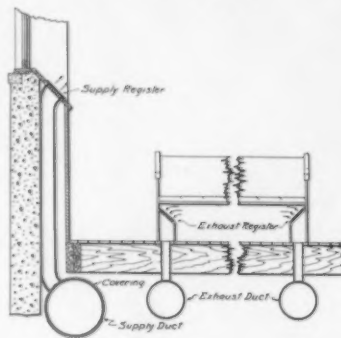


Fig. 1

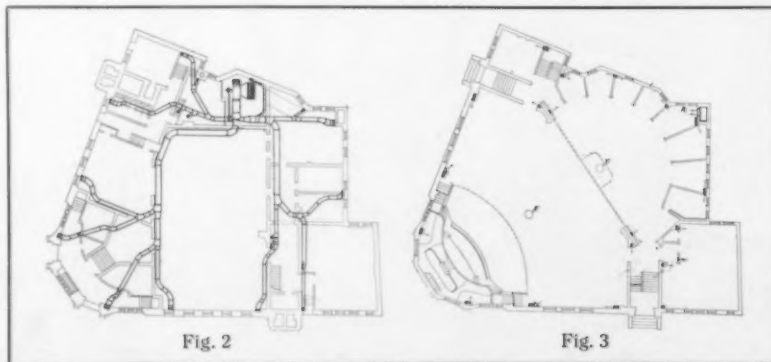


Fig. 2

Fig. 3

have usually no practical way of recirculation and, owing to most of the outlets being located at or near the floor level, the velocity of the heated air is very small.

With a heat stack hung on the basement ceiling it is often less than 24 inches to the outlet in the floor above, which means a great decrease in velocity; this requires of course excessive radiation and an undue number of outlets which must also be of much larger size than required with a fan.

In fact, a church in which a system of the steam heated indirect gravity kind was installed in connection with an old type of propeller fan is shown in Figs. 4 and 5, these being the basement and first floor plans after the heating was remodeled. This alteration was made, needless to say, by the unsatisfactory operation of the indirect radiator system first installed; but the desire to avoid additional expense caused the utilization as far as possible of the old registers, which accounts for some of the idiosyncrasies in register shape and location as shown; otherwise the system is good.

Some of the readers of this article may question the showing of a system which is not "ideal" in every particular. Sad to say, systems "ideal" in every particular are few and far between. It is the purpose of this article not so much to theorize and vaporize on what should be — and is not — as it is to take practical installations which serve their purpose reasonably well — and which are installed.

It will be seen by referring to Fig. 4 that a fresh air chamber is located on one side of the basement in which a vertical down-discharge fan SF is located, the fan drawing the air out of the chamber and discharging it into an underground duct. The duct splits into two branches, one branch going to the rear heater chamber and the other to the front heater chamber. The pressure produced by the fan drives the air upward in the heating chambers and through the indirect heaters H into the supply ducts on the ceiling, which carry the heated air to the various supply registers. This air is *not* intended to heat it, serving to ventilate only; the heating is accomplished by the direct radiators shown in Fig. 5. The system would have been improved had the supply registers been placed under the windows, but money was not available to permit this radical change. An elevation of the supply fan and one heater chamber is shown in Fig. 6.

The exhaust is pulled out through the various exhaust registers by a fan EF (located on the other side of the basement across from the supply fan), which discharges the air on the opposite side of the building. The dis-

charge air from the adjacent Sunday school is carried out through the duct E, although this does not affect the church system in any way; Z indicates unexcavated cellar.

This system has the advantage of supplying fresh, cool air, if desired, just as efficiently as hot air and keeps the power bill at the minimum.

A most important matter in the installation of a church system is the elimination of noise to the greatest possible extent. Of course, this is *always* desirable in any system, but it must receive particular attention in churches. The average church while having massive masonry walls for some reason seems to have poorly constructed floors; a few have concrete or terra cotta floor constructions but most have only wooden floor joists with plaster below and flooring above, this construction having no

more sound proof qualities than possessed by the ordinary frame house. Therefore, while noise is specially objectionable, the normal construction means of deadening such noise is unusually poor.

Noise in fan systems is generally produced by one or more of several distinct causes. These may be divided into fan noises (caused by too high speed or by improper alignment), air noises (caused by high velocities), belt noises (when belts are used), a motor hum (present to greater or less extent in all motors), and vibration noises caused by improper or unstable foundation.

In cases of improper alignment, of course, the remedy is easily applied; while maintaining air velocities of 1,200 feet per minute or less will generally prevent the sound of the air moving through the ducts. The matter of fan

speed should be carefully looked into before specifying a fan; in general, a tip speed not to exceed 3,000 feet per minute will be quite conservative, but the recommendations of the manufacturers of the particular fan specified should also receive consideration.

Belt noise is always present where the motors are belt connected to the fans, but this trouble may be aggravated by looseness and improper joints.

The hum of the electric motor is a sound of apparently small moment, yet in alternating current motors it is of a peculiarly penetrating character. Many engineers regard the motor hum as deserving of more consideration than the fan which the motor drives. Let us see what means may be taken to overcome the various noise troubles.

In Fig. 9 is shown a fan and motor installed in what may be termed a "first-class standard manner." Both the fan and motor are set on substantial concrete founda-

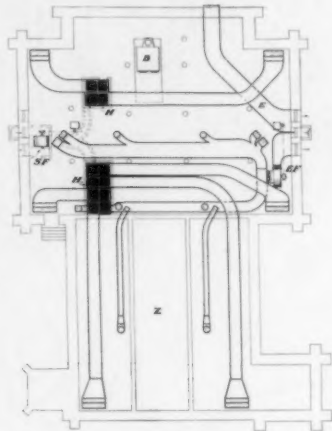


Fig. 4

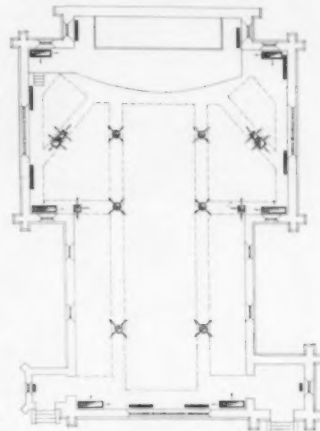


Fig. 5

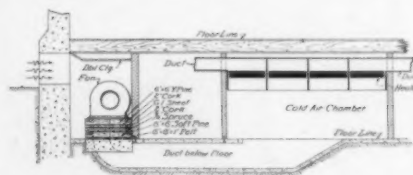


Fig. 6

tions, A being a 4 by 6 inch yellow pine frame halved together at the corners and bolted to the foundation bolts, the heads of which are countersunk into the frame. The fan is lagscrewed to the frame and a 2-inch cork separator pad C is placed between the frame and the concrete foundation F; the motor is set in a similar manner. With ordinary first-class apparatus, properly installed, and masonry floor construction this arrangement is fairly satisfactory. With wooden joists, plaster ceiling, and common flooring above, the motor hum from this installation will be plainly audible in the church and other more efficient means should be adopted.

In Fig. 7 is shown a method of confining the motor hum so as to render it unobjectionable, but this method does not kill the noise of the belt or the fan. A, C, and F in this figure indicate the same materials as in Fig. 9, while the canvas joint shown should be used on any and all fans wherever installed. It is impossible to operate a fan without having a certain amount of noise from the moving air and revolving parts; this is transmitted from the fan to the duct which telephones it direct to the room outlets unless the metallic connection is broken by the canvas connection, this being usually made about 8 inches long. With Fig. 7 the noise still might be heard to an objectionable extent in the church, but on the other hand again it might not, this depending largely on the fan and its peculiarities.

In Fig. 8 a much superior method of sound deadening is shown, this having proved satisfactory in almost every case. Here A is a yellow pine frame as previously described; B is $\frac{7}{8}$ inch tongued and grooved stock; C consists of two layers of 2-inch cork, and D is another layer of $\frac{7}{8}$ -inch boards, binding the whole together; E is piano felt 1 inch thick and in strips 6 inches wide; while F is a common concrete foundation. Sometimes lead or rubber washers are used under the foundation bolt nut heads which are recessed in the frame, the fan being lagscrewed as before, while the hung ceiling over the entire apparatus gives a double dead air space between the fan room and the church. Of course it is necessary to carry the regular basement ceiling straight through on the bottom of the joists in order to produce the double space, but after being thus treated this installation may be safely located under any portion of the church.

Where basement head room is scanty, various expedients are adopted, the best of which lower the grade of the fan

room floor until the method shown in Fig. 8 can be used. Where this is not practical, an expedient such as is shown in Fig. 10 may be used. Frankly, this will not be as efficient as the method shown in Fig. 8, but it is fairly satisfactory.

When exhaust fans are located on upper floors the problem is also best solved by the scheme shown in Fig. 8, the foundation F being carried on suitable structural steel supports. Where the head room is limited, a structural steel support arranged as shown in Fig. 11 will also give good results.

One thing that should be remembered in all fan installations carried on steel supports is "mass in the foundation." In other words, there must be sufficient weight in the foundation mass to absorb the vibration of the fan for, although small, this vibration is present just the same.

As an example of this in aggravated form it may be interesting to note the case where one of the large public service companies recently installed some blowers for forced draft purposes. These blowers were driven by direct connected steam turbines, thus eliminating all reciprocating parts, but of course they operated at a much higher speed than the ordinary fan. The blowers were located on a steel platform constructed of 15-inch I beams swung across the firing aisle between the two rows of boilers and supported on the steel building columns. The beams were designed with a factor of safety of twelve and had a 4-inch reinforced concrete slab to form a walkway around the apparatus.

In spite of all that the manufacturers' experts and the company's engineers could do, this platform shook so when the apparatus was started that it was impossible to stand on it without holding on to the handrail. Numerous suggestions for remedy were made and

tried out, but none sufficed until a common wooden form was built under the bottom of the I beams and the 4 inch concrete slab torn off and a new slab 15 inches deep, extending from the top to the bottom of the beams, was poured in its place. No further trouble from vibration was experienced simply because the increased weight of the mass was sufficient to absorb the vibration.

The same effect in a lesser degree is present in every fan carried on steel members, and the presence of a 12-inch concrete slab under the entire area covered by both the fan and the motor, while a simple matter during construction, will save much annoyance that might occur.

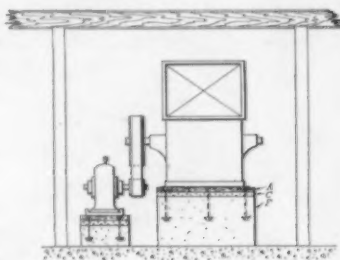


Fig. 7

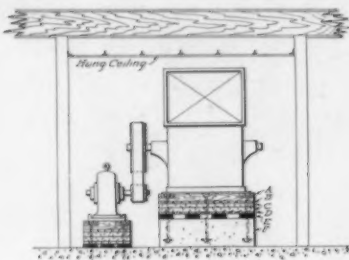


Fig. 8

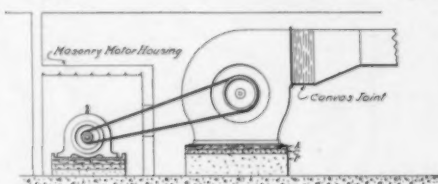


Fig. 9

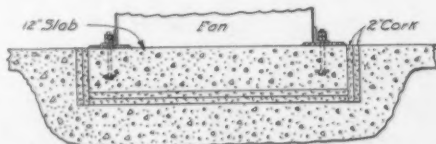


Fig. 10

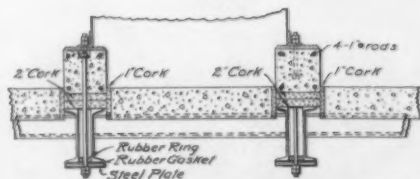
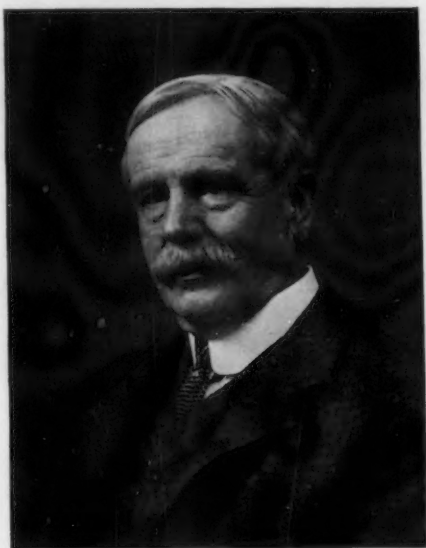


Fig. 11

✓

As He Is Known, Being Brief Sketches of Contemporary Members of the Architectural Profession.



WILLIAM RUTHERFORD MEAD

WILLIAM RUTHERFORD MEAD, son of Larkin Goldsmith and Mary Jane (Noyes) Mead, was born on Aug. 20, 1846, in Brattleboro, Vt. After passing through the local high school, he went to Norwich University from 1861 to 1863, and then entered Amherst College, graduating in 1867, and at once commenced the study of architecture in the office of Russell Sturgis. In 1871 he went abroad, studying in Florence for a year and then traveling for three months.

In 1872 he formed a partnership with Charles F. McKim, and in 1878 Stanford White entered the firm, which was thenceforth known as McKim, Mead & White. Mr. Kendall, Mr. Fenner, and Mr. Richardson became partners in January, 1906. Mr. White died in June, 1906, and Mr. McKim in September, 1909, leaving Mr. Mead the only survivor of the original firm. Mr. Mead is a fellow of the American Institute of Architects; was president of the New York chapter in 1907-08; is a member of the Academy of Arts and Letters; an academicien of the National Academy of Design, and has been president of the American Academy in Rome since 1909. He has received the degree of Master of Sciences from the Norwich University in 1909, and the honorary degree of "LL.D." from Amherst College in 1902, and the gold Medal of Honor of the Academy of Arts and Letters "for distinguished service in the creation of original work in architecture" in 1913.

The premise that externals often conceal character does not apply to Mr. Mead. His kindness and courtesy are constantly apparent, and a very just comprehension of the relative value of things is accompanied by a charitable judgment which often softens the edge of his occasional condemnation. The cumulative refinements of design and the coruscations of genius of his former associates would have failed of their full success if deprived of the permanent background of his good sense, his talents for sound planning, and for the accommodation of facts to fancies. It is the method of attack, based on these fundamentals, which has produced the great architecture of the world, and the results he has attained are comparable with those of his predecessors.

His modesty would probably make him disclaim any eulogistic remarks made in regard to him; nevertheless it is a satisfaction to state his eminent position in the profession of architecture and to call attention to the beneficial influence he has had upon American work. — R. A.



THOMAS HASTINGS

THOMAS HASTINGS was born in 1860, the son of the Rev. Thomas Hastings, an eminent Presbyterian divine, who was for years the president of the Union Theological Seminary in New York. His mother was a Miss de Groot, an American of Dutch and French parentage.

He received his professional education at the Ecole des Beaux Arts, studying in the atelier of M. Jules André, and took the full course in the Department of Architecture. Mr. Hastings has had many honors conferred upon him for his eminence in his profession. He is a chevalier of the Legion of Honor, decorated by the French Government, a director of the Museum of French Art, a corresponding member of the Royal Vienna Association of Architects, an academicien of the National Academy of Design, a member of the Federal Commission of Fine Arts in Washington, a member of the American Academy of Arts and Letters, chairman of the Lincoln Highway Commission, a fellow and director of the American Institute of Architects, and has been president of the Architectural League. In 1884 he formed a partnership with the late John M. Carrère.

To appreciate the varied work of Mr. Hastings, from his first burst of exuberance in the Ponce de Leon Hotel to the restraint of the Frick house in New York, there must be an understanding of the sensitive qualities of his mind to the subtleties of expression, the modulations of composition, the pleasure in delicate detail, and even the delights of fantasy. From whatever source he gleans an inspiration, whether it be from Spain or from his beloved France, he penetrates the spirit of his chosen example and saturates himself with its character before he translates it into a new creation which has become a part of himself. His choice is that of a classicist who is eclectic within a self-imposed range which seldom is sympathetic with the Gothic spirit. That this is the case is natural; for his mind, though alert in fancy, seeks expression in formulated terms, in intellectual conventions, produced from serious study. He can better endure enthusiasm controlled by precedent than exuberance breaking a path to new vistas. Therefore his work manifests not only the good taste of his appreciation, but also that of training. Whether it be broad and simple, or decorative and complex, a refinement of line and of surface, of arrangement and of light and of shade, all give evidence of the careful study it has received. — C. H. W.



CHARLES A. PLATT

CHARLES A. PLATT, who was born in New York in 1861, is an original figure in American architecture.

The canonical practice in this country which imposes upon every young draftsman a certain amount of office training, under some senior of established repute, is contradicted by his career. He did not begin life at the drafting board and he knew no office until he organized one, for he did not need either of them in his formative period. He began, instead, by painting and etching. When he went to Paris, in 1882, to study at Julian's under Boulanger and Lefebvre, and for some years thereafter, he seemed destined to make pictures alone. They were landscapes, chiefly, and they had the merits that endure, being truthful, beautiful, and full of personality. With such traits, and an inborn faculty for acquiring almost any technique, it was a simple matter to unlock the doors of other arts. Wandering in Italy he fell under the spell of the formal garden. He wrote a book about it and proceeded to design gardens himself. By this time the impulse to design buildings also, which had long been stirring in him, came irresistibly and as a matter of course to the surface. He became an architect as he had become a painter, out of a creative inspiration, and the outstanding precious fact resulting therefrom is that his buildings have style.

This it is that fixes his rank and explains his constantly growing influence. Appreciation of his first buildings must take account of their indebtedness to the Italian villa, but even at this point the derivative factors in a design of his are of a very subtle sort, and as the chronological sequence develops it very soon discloses the artist's essential independence of his Renaissance models. The facade into which he may introduce a Florentine note is expressive of a plan based upon the daily needs of an American household. And his Italianism, in fact, is at bottom nothing more than a love of simplicity, of pure line, of rhythmic proportion. For some years these predilections were illustrated altogether in the solution of a single problem, the country house. More recently a large apartment house in New York and office buildings there and elsewhere have engaged his attention. In these fields, too, he has affirmed his salient qualities of taste and beauty. At present he is preparing the plans for the Freer Museum at Washington, a monument of unique significance inasmuch as it is to house a single collection and to express a particular idea. The drawings foreshadow a structure of rare interest. It will be perfectly adapted to the everyday working requirements of a museum and it will be a thing lovely to look upon, light and graceful in style, yet with the due reposefulness and dignity of a public building. The fusion of practical and æsthetic issues is characteristic. It supplies the key to Platt's genius as an architect.—X. X.



FRANK MILES DAY

THE completion of the Art Club in 1887 on Broad street, Philadelphia, was the beginning of Frank Miles Day's career as an architect. Born in Philadelphia in 1861, after graduating at the University of Pennsylvania in 1883, he studied at South Kensington and was admitted as a student at the Royal Academy, London. His chief architectural education, however, was derived from several periods of travel-study in Europe. Returning to Philadelphia in 1886, where he soon opened an office, the above named clubhouse was his initial performance. Then it was that the public noted the arrival of an able designer, while the local circle of architects and their assistants witnessed another telling personality in that of Mr. Day joined to the brilliant group of Wilson Eyre, Walter Cope, and John Stewardson, all of whom were destined to work much good for the profession in their community. In 1892 Mr. Day joined in a partnership with his brother, H. Kent Day. In 1911 Charles Z. Klauder was admitted to partnership, and with the retirement of H. Kent Day in 1912 the firm became Day & Klauder.

Mr. Day follows an unswerving path toward the best in architecture. Time and study he lavishes unstintingly upon pure design, and in this task his quick discrimination discovers the good as unfailingly as his uncommon critical faculty discards the poor and commonplace.

But Mr. Day's talents are many sided. No one has a clearer and more just perception of the proper relations that should exist between architect, owner, and contractor. His mind assumes an almost legal cast when the execution of his buildings is to be begun, and the business methods of his office have largely contributed to that standard practice which fair minded men to-day accept and are following in the business of erecting honest buildings. One of Mr. Day's absorbing interests is that of literature; and in a country such as this, where so few professional men are possessed of literary tastes and ability, it has been indeed fortunate for the important field of architectural letters that Mr. Day has lent it much willing and effective service. Nor does he excel in the effective presentation of subjects by means of writing only. He is one of the ablest public speakers that the profession in this country has ever had. In addition to his regular lecturing to students of the Pennsylvania Academy of the Fine Arts, the universities of Pennsylvania and Harvard, and the cares of his large and increasing practice, he finds time to speak often in the interest of public spirited movements and civic betterment. He is an authority on competition programs, and probably has served on more architectural juries than any other practising architect. Mr. Day has twice been president of the Institute. He is identified with numerous learned societies both here and abroad, and is now supervising architect to at least ten prominent colleges or universities in this country.—H. C. W.

PLATE DESCRIPTION.

WEST PARK PRESBYTERIAN CHURCH, NEW YORK, N. Y., Carrère & Hastings, Architects, Plates 168-170.

The brickwork of this church is of a buff color and laid in Flemish bond with a light colored mortar. The exterior trim is of buff Indiana limestone with a fine rubbed finish. The structural part is entirely of steel frame, fireproofed throughout; the floors and flat roofs are of concrete slabs, while the pitched roofs are of book tile covered with copper. The auditorium is decorated with ornamental plaster work painted a cream color, enameled. The ventilation is by a plenum system and the heating by an indirect system. The large windows are of metal sash with cathedral glass. The main stairs have marble treads with ornamental wrought iron rails. The cost of the building complete, including furniture and fittings, was about 40 cents a cubic foot, and the capacity of the main auditorium and gallery is 800.

ST. JAMES' PRESBYTERIAN CHURCH, NEW YORK, N. Y., Ludlow & Peabody, Architects, Plate 171.

This church, which serves a negro parish, has a very complete equipment for social work for filling the requirements of the modern church, which must not only hold services for worship, but also classes for cultural work, lectures, social gatherings, and gymnasium classes. Besides the housing of these activities as shown on the plans, the roof of the church will also be utilized as a recreation garden for children and also for open air services during the warm weather of the summer.

The materials employed are red brick laid with wide light joints with stone and terra cotta trim. The auditorium is decorated in white and mahogany and has a seating capacity of 450 persons. The interior shows a barrel vaulted ceiling, supported on rows of Corinthian columns which form the side aisles.

CHAPEL OF THE DOMINICAN SISTERS OF ST. AGNES, SPARKILL, N. Y., Davis, McGrath & Kiessling, Architects, Plate 172.

The exterior of this church, while simple in its design, is enhanced by the interest of the brickwork, particularly the use made of pattern in the gable of the main façade. The brick is laid with a wide, light colored flush joint and the trimmings are of stone. The seating capacity is about 650.

ALL SAINTS' EPISCOPAL CHURCH AND ST. JOHN'S PARISH HALL, WEST NEWBURY, MASS., Clark & Russell, Architects, Plates 173, 174.

The brickwork of this church is laid with a light colored wide flush joint and the trimmings are entirely of manufactured cement stone. The roof is of extra heavy slate laid in graduated widths. The interior walls are plastered and the ceiling shows the open timber work which is stained a dark brown. The floors of the aisles and the vestibule are of black and white marble, while the floor of the chancel is of terrazzo. There are accommodations for about 150 persons and the cost complete, including furniture, was about \$25,000.

The Parish Hall is of stucco and brick with some half-

timber work in the gables. The water table is of bricks laid on a slant. The hall seats about 250 people. The total cost of the building was approximately \$15,000.

ST. MARK'S ROMAN CATHOLIC CHURCH, DORCHESTER, MASS., Brigham, Coveney & Bisbee, Architects, Plate 175.

The building consists of a central nave with clerestory carried on an arcade and covered by a pitched roof with open timber construction and of side aisles covered with pent roofs.

The design is a free rendering of the last phase of Gothic in England, called Perpendicular. The treatment is in general simple with a certain amount of richness in the window treatment, especially in those in the sanctuary, and at the entrance.

The exterior walls of this church are of a dark red rough texture brick laid with wide flush joints. The trimmings and tracery are of gray artificial stone and the roofs of green slate laid in courses of graduated widths. The walls of the interior are mostly of plaster, decorated in the nave and aisles and in the sanctuary with painted decorations. The woodwork of the interior and the furniture throughout are of slashed oak, stained a deep rich brown. The seating capacity of the upper church is 1,200, including the space in the gallery, and that of the lower church is approximately the same. The cost of the building was approximately 14½ cents a cubic foot.

ST. COLUMBA'S ROMAN CATHOLIC CHURCH, JOHNSTOWN, PA., John T. Comes & J. E. Kauzor, Associate Architects, Plate 176.

Interesting use of brick pattern work with stone and terra cotta trimmings and stucco panels has been made in the design of the exterior of this church. The roofs and copings are of Spanish tile. The entrance motive with carved figures and decoration is of stone. The columns of the interior are of stone with tile inserts on the capitals and plaster walls above. A touch of color is given by the brick lining of the arches. The floors of the aisles are of tile, while the floor of the chancel is terrazzo. The reredos is of carved stone. The seating capacity is about 450.

BAPTIST MEMORIAL CHURCH, TWICKENHAM, ENGLAND, Ingall, Bridgewater & Porter, Architects, Plates 177, 178.

The free adaptation of Gothic motives in this building is typical of the modern church work of England. The brickwork, both on the exterior and the interior, is all of hand made bricks in mixed colors. The total cost of the building was approximately \$19,000.

ALL SAINTS' CHURCH, GOODMAYES, ESSEX, ENGLAND, P. K. Allen, Architect, Plates 179, 180.

On the exterior the walls are of red brick with Portland stone trimmings, the roof being covered with silver gray slates. On the interior the walls are plastered, while brick arches rest on the stone piers. The roof is of Oregon pine left to tone down naturally. The seating capacity is between 700 and 800, while the cost of the building was about \$47,000.

EDITORIAL COMMENT AND NOTES FOR THE MONTH



THE composition of the library of an architect is a matter which deserves considerable thought and attention. With the highly developed state of photography and printing has come a vast production of works dealing with architecture, picturing monuments from all parts of the world, and flooding the architect with material from which to choose.

For various reasons the average library must be limited. The very nature of architectural books which demands that they be illustrated completely often makes their cost high so that only a few may be acquired. The average architect of to-day, moreover, has little time to devote to matters other than those pertaining in some manner, more or less direct, to his practice. There is a great amount of detail in the office to be attended to, and clients of the present and future are likely to consume a large proportion of the remaining time. The tendency then of the general architect is to limit his library to those works from which the most immediate benefit may be derived, that is, to purchase principally those books pertaining to design or construction—books from which "inspiration" of a direct character may be obtained.

Too frequently the history of architecture is almost entirely slighted or forgotten. The architect as a man of general culture should have a knowledge of architectural history as a part of his special and particular information. But, apart from this view, the study of history from the aspect of cause and effect, of environment and production, the study of architectural forms as an indication of historical life becomes a source of material of immense value. Few men in the profession are really satisfied to be merely imitative, slavishly following precedent without thought concerning new conditions of living and new requirements of building. In fact, true architecture in the broadest sense of the word is the exact opposite—it is only that work in which a distinct forward step is made and in which the life of its time is reflected.

The historical monuments are such works, and they exist in memory because of this very fact. The study of architectural history then, from this point of view, will not only lead to a better and more sympathetic understanding of historical forms and monuments, but will also stimulate and offer inspiration to the man striving to-day to express himself and his period in the art of building.

IT IS from this point of view that A. L. Frothingham, late professor of archaeology and the history of art at Princeton University, has written the two volumes which complete the monumental work, "A History of Architecture," started by Russell Sturgis, and of which the first two volumes were practically completed before his death. The first two volumes, however, took the survey only to the

end of the period of the Romanesque, and Mr. Frothingham has finished it with a consideration of the Gothic and Renaissance. These two periods are those of closest similarity to our own modern age and from which the greatest amount of architectural inspiration has been derived.

The author calls the Gothic period a period of *dynamic* architecture as compared to the *static* architecture of the Renaissance. It was a period of development of architecture as compared with a period of the development of decoration. Because of this more subtle quality of the Gothic it cannot be doubted but that it marks the greater architectural advance. It is because of this less obvious quality of structural beauty that the Gothic is less easily copied by the modern architect, no one of which has yet fully mastered the laws governing the construction. The Renaissance is a simple matter in comparison because of its complete reliance on external beauty and proportion.

It is by realizing the conditions under which these styles were evolved that they become of value to us as architects of to-day, and it is this point which Mr. Frothingham has made the foundation of his text.

THE New York State Board for the Registration of Architects announces a competition for the purpose of securing a design for the certificate which will be issued to all persons entitled to practise architecture in the state of New York. This competition is open to all architects, draftsmen, or other designers resident or doing work in New York City. The designs submitted must be in the hands of D. Everett Waid, 1 Madison avenue, on or before Jan. 25, 1916, and will be judged by a jury composed of William R. Mead, Henry Bacon, Charles Platt, and S. B. P. Trowbridge of New York City, George Cary of Buffalo, Frank H. Quinby of Brooklyn, and J. Foster Warner of Rochester. The prizes are: \$200 for the design placed first, \$150 for the second, \$100 for the third, and \$50 for the fourth. Information concerning details of the competition may be obtained from Mr. Waid.

AT the annual meeting of the American Institute of Architects held in Washington, D. C., on December 1, 2, and 3, the following officers were elected: President, John Lawrence Maura, St. Louis; 1st Vice-President, C. Grant La Farge, New York City; 2d Vice-President, Milton B. Medary, Jr., Philadelphia; Secretary, Burt L. Fenner, New York City; Treasurer, D. Everett Waid, New York City.

The new members of the Board of Directors elected for three years are: Edwin H. Brown of Minneapolis; Horace Wells Sellers of Philadelphia; Ben J. Lubschez of Kansas City.

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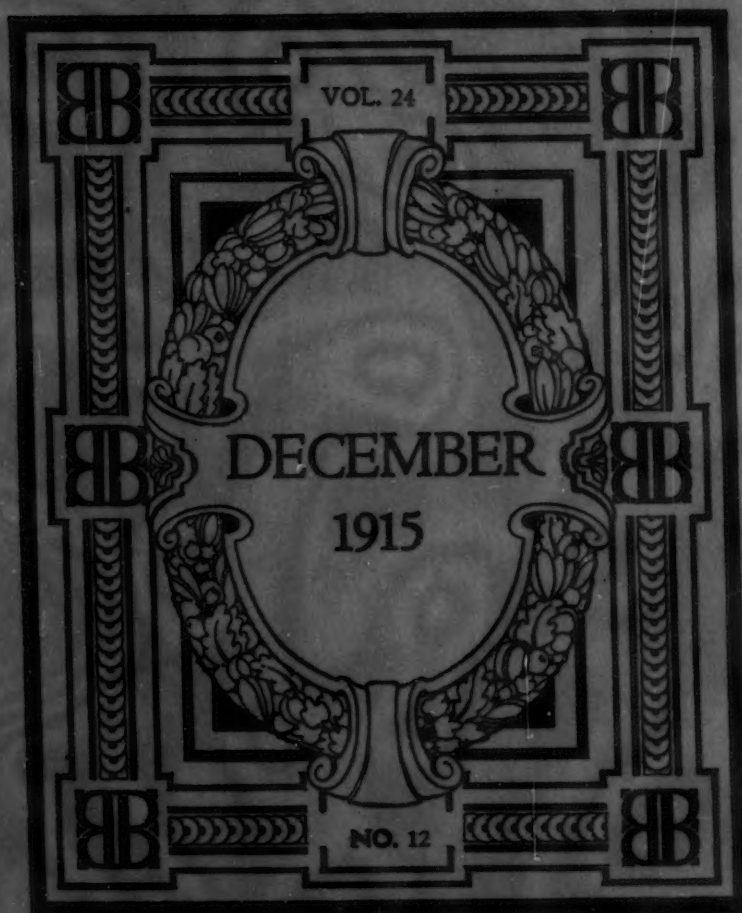
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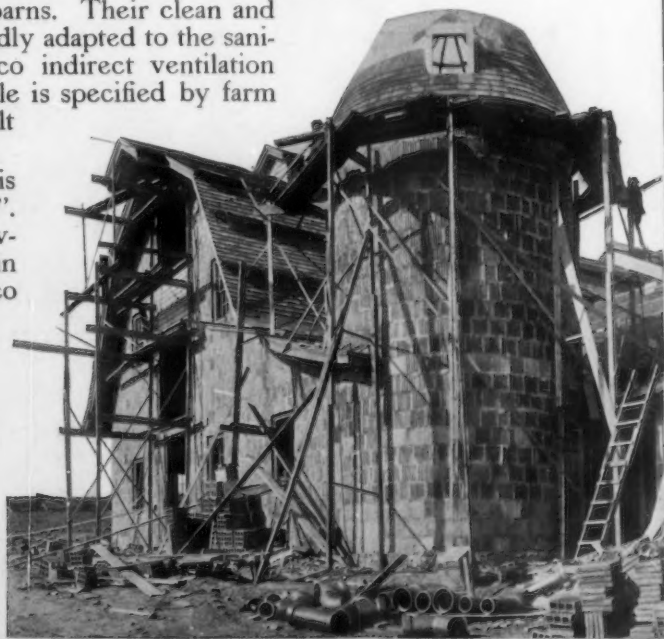
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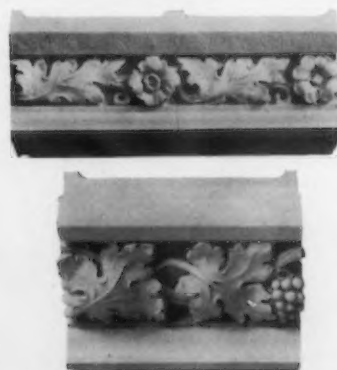


Detail of Arch at Top Story
Commercial Building, 1652 Broadway, N. Y.

James C. Green, Architect

THE entire facade of this building will be of light granite colored South Amboy terra cotta with an irregular tooled surface effect. Attention is called to the character and strength of modeling illustrated.

Details of Mouldings at Second Story



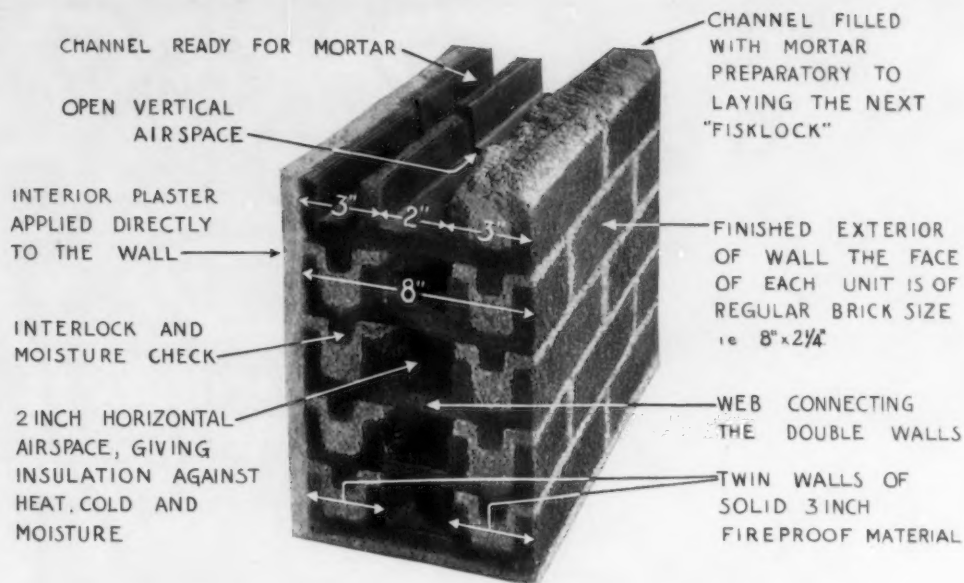
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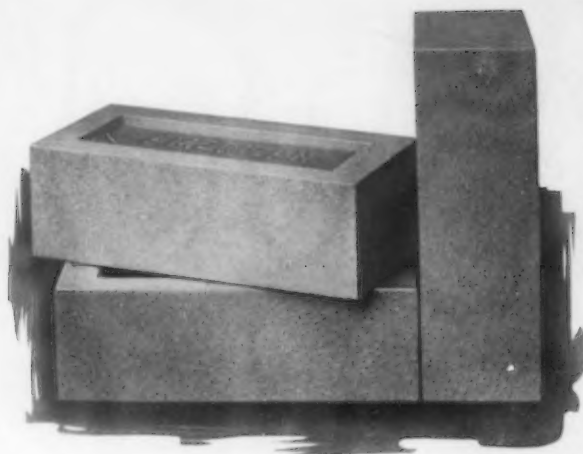
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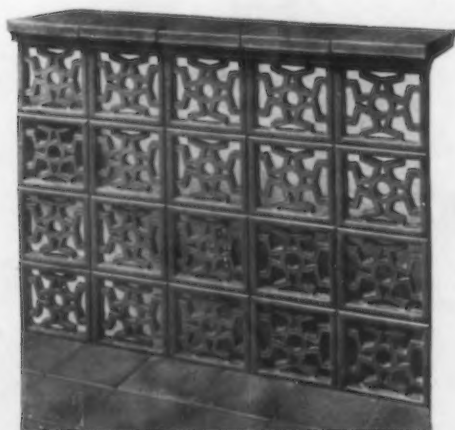
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NUMBER 12

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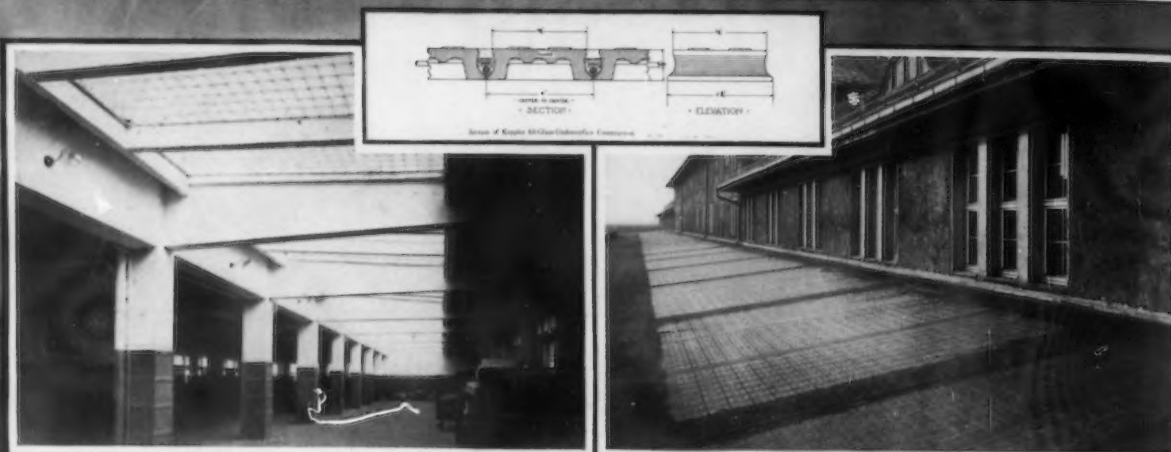
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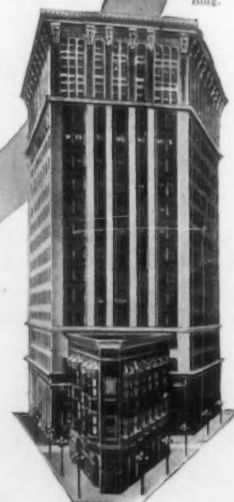
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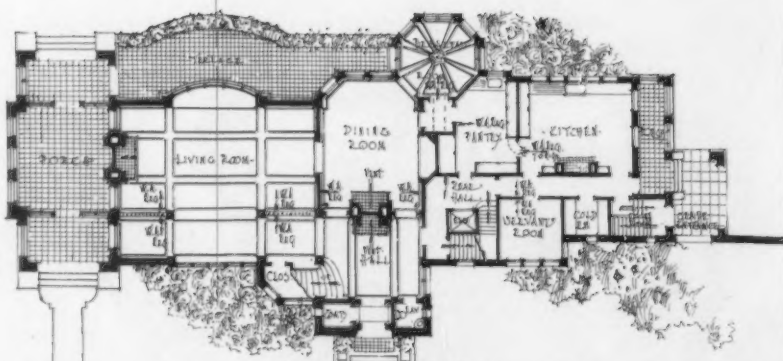
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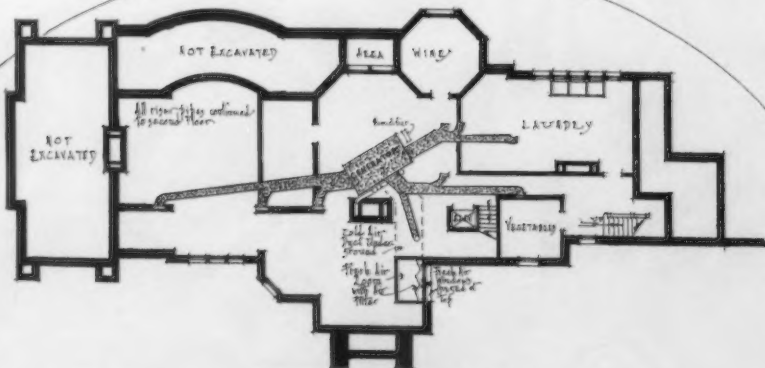
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Not affected by the severest climatic changes. Are fire-retardant and are impervious to the ravages of time.

J-M Transite Asbestos Shingles are examined, approved and labeled by the Underwriters' Laboratories, Inc., under the direction of the National Board of Fire Underwriters. Laid American Method, they are given Class "B" rating. Laid French Method, they are given Class "C" rating.

Let us suggest that you use them the next time you are considering the use of a shingled roof. Write nearest branch for our interesting booklet.



*Residence of Mr. Pash Warner, Clinton, Ill. Frank A.
Carpenter, Architect. J-M Transite Asbestos Shingles.*

For maximum delivery of every pound of steam generated we recommend—J-M Sectional Conduit



*Installing J-M Sectional Conduit
at State School of Mines,
Rapid City, So. Dak.*

To-day we hear from all sides the demand to "deliver."

And it is the product that delivers with maximum efficiency and consistently delivers which has the approbation of the thinking man of to-day.

Records show that J-M Sectional Conduit saves in delivery at least 90 per cent of the heat lost in underground transmission through unprotected or poorly insulated pipes.

It saves from 10 to 20 per cent of the coal required and at the same time reduces fire insurance rates and the expense of operatives.

J-M Service superintends a careful installation of the whole conduit system. The worth of this installation service is evidenced by the many large underground installations throughout the country which are giving our clients the utmost satisfaction. (See partial list in J-M Sectional Conduit Catalog.)

Will you allow our nearest branch to estimate on your next job?

JOHNS-MANVILLE PRODUCTS

J-M Corrugated Asbestos Roofing
J-M Regal Roofing
J-M Asbestoside
J-M Asbestos Slaters Felt
J-M Asbestos Roofing and Insulating Felts
J-M Keystone Hair Insulator

J-M Hair Felt
J-M Sound Deadening Felts
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TO THE ARCHITECT

When you specify J-M Waterproofing materials you are figuring for the future

In selecting a material for waterproofing purposes, the first consideration is durability. Waterproofing that is not *permanently waterproof* becomes a cumulative expense from year to year.

J-M Waterproofing has by consistent performances shown that it is lasting, economical and that it insures complete satisfaction.

Let our Engineers study the condition. They will work in conjunction with you for a satisfactory result to you and your client.



Municipal Bldg., N. Y.
McKim, Mead & White, Architects.

J-M Mastic Flooring is waterproof, wear-proof and suited for all conditions



Chicago, Rock Island & Pacific Railroad Freight House,
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J-M Mastic Flooring, by reason of its remarkable ductility, toughness, strength and enduring qualities, is peculiarly adapted to fit many conditions.

It provides a surface that is waterproof and at the same time practically wear-proof under ordinary service conditions. It is unaffected by acids, alkali and brine.

Is sanitary, does not originate dust—a matter of vital importance in places where flying dust is dangerous or undesirable.

If you will acquaint the J-M Flooring Service of any branch with your requirements, a specific flooring will be suggested.

At the time of planning, give Acoustics the same consideration as lighting or heating—consult J-M Acoustical Service

Sound control is as effective in contributing to comfort and efficiency as heat or light.

J-M Acoustical Service specializes in sound control.

Materials and methods have been perfected that insure by their application proper acoustical conditions in buildings of all sorts, and

J-M Acoustical Service has consistently applied this knowledge in collaboration with architects on new buildings and also on those already erected.

Let us discuss your building problems so that your plans will originate a good building from an acoustical standpoint as well as from an architectural standpoint. Ask any Branch.



Allegheny County Soldiers' Memorial Hall,
Pittsburgh, Pa.
Palmer, Hornbostel & Jones, Architects.
Treated Acoustically by J-M Method.

JOHNS-MANVILLE PRODUCTS

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J-M Transite Asbestos Wood
J-M Asbestos Stucco and Plaster
J-M Asbestos Cloth and Vitribestos Theatre
Curtains

J-M Architectural Acoustics
J-M Waterproofing Materials
J-M Mastic Flooring
J-M Asbestos-Sponge Felted Pipe
Covering and Sheets

J-M Asbestocel Pipe Covering and Sheets
J-M Zero Pipe Covering
J-M Anti-Sweat Pipe Covering
J-M Sectional Underground Conduit
"Noark" Enclosed Fuse Devices



Gwynne Building,
Cincinnati, O.

E. FLAGG, New York, Architect.

JOHNS-MANVILLE SERVICE TO THE ARCHITECT

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We believe that thoroughness in planning and in execution are vital factors in successful manufacturing and that creative work built on this basis results in a product which stands.

This is particularly true in lighting, because of the great variety in lighting materials and in their application.

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—A service that is able to cope with any lighting requirement.

—A service that combines the skill of three organizations fused into one.

Lighting work entrusted to the J-M LIGHTING SERVICE receives the benefit of the combined, yet specialized experience and equipment of

*Mitchell-Vance Co.,
I. P. Frink Co. and
Gill Brothers*

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Mitchell-Vance Lighting Fixtures and Bronzes, and Gill Bros. Co.'s Parian Ware.*

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The Finishing Touch

that marks the perfection and completeness of the building and secures to its occupants the maximum in comfort.

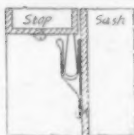
MONARCH METAL WEATHER STRIPS

insure proper control of ventilation and greatly increase heating efficiency with a positive saving in fuel consumption.

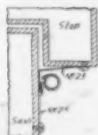
They are adaptable to any kind of opening. Adjust themselves automatically to any displacement in sash, door or frame that may occur as a consequence of swelling, shrinkage or warping, preserving the continuity of every line of contact and promoting free easy movement in opening and closing.

Monarch Metal Weather Strips will not rust, wear, break or get out of place. We undertake all installations and guarantee permanent satisfaction.

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HEAD or SILL.—Head or sill strips are tubular and engage tubular member of sash giving perfect line of contact.



SIDE.—Tubular female member on sash engages tubular male member with resilient hinge attached to frame. Permits automatic closing, if fuse links blow.

Buildings equipped with MONARCH Metal Weather Strips

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Representatives everywhere. Write for catalog and full-size details, also name and address of nearest licensee, who can demonstrate the MONARCH principle.



Hon. Chas. W. Fairbanks Residence, Indianapolis, Ind.
Equipped by W. L. Holden & Co., Indianapolis, Ind.

Monarch Metal Weather Strip Co.

4125 Forest Park Boulevard, St. Louis, Mo.

See page 972 Sweet's Catalog



Tight — because it's shaped right

Von Duprin

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Are your exit doors safeguarded? A few dollars' expense for Von Duprin equipment would surely give you mental relief — would it not?

Sixty years of experience in the merchandising of Builders' Hardware guided us in the production of these Latches.

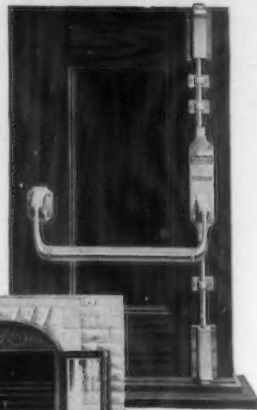
They have stood the test in every competition, and have proved satisfactory wherever applied.

That the mechanism is as good as new after years of service on a school-house door is proof positive of substantial construction. This quality, we assert, is found only in the Von Duprin Self-Releasing Fire Exit Latches.

They are the best.

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Specify Von Duprin and demand them.



No. 1127 — Inside Elevation "Type B" See "Sweet's Index" Pages 900-904 for complete specifications

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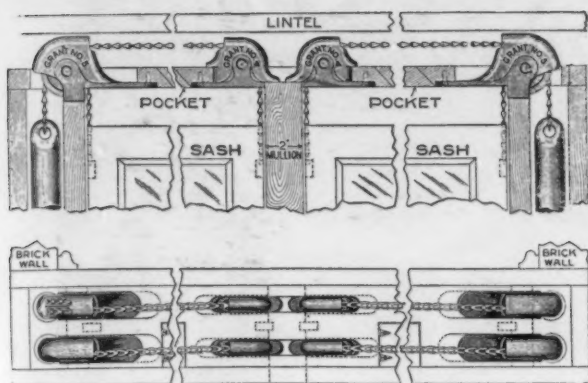
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Grant Overhead Sash Pulleys



The above drawings show the application of GRANT overhead pulleys to twin windows. By the use of our pulleys a two-inch mullion is sufficient, thus increasing the glass area. The additional pocket room gained permits the use of iron instead of lead sash weights where plate glass is used.

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Other Specialties—Grant Horizontal Rolling Partitions. Grant Vertical Curling Doors. Grant Anti-friction Casement Window Fixtures. Grant Anti-friction Vertical Pivot Lift. Grant Anti-friction Drawer Slides. Perfect Casement Water Excluding Bar. Diamond Ball-bearing Door Hanger. "American" Pressed Steel Sash Pulleys.



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Paul Gerhardt, Chicago, Architect
Richard E. Schmidt, Garden & Martin, Chicago
Associate Architects

The soiled linen in this modern Hospital spreads no infection through ward, hall or elevator shaft. It is despatched direct to the laundry through a

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GLASS ENAMELED STEEL LAUNDRY CHUTE

—a durable, fireproof steel shaft lined with a germ-proof coating of Glass Enamel and kept absolutely pure by frequent showers of hot water from a flushing ring at the top. All infection and filth from ward or operating room linen is washed into the sewer.

No attendant accompanies the soiled linen to the laundry; no elevator power is used. Glass doors, which close hermetically, are placed at each floor.

"Shrapnel," a booklet recently published, explains to Architects the need for a Pfaudler Chute and contains specifications and a blue print. If you haven't received a copy, drop us a line.

Note.—We also build Sanitary Water Tanks of Glass Enameled Steel for Public Buildings, Institutions and Residences. Let us figure on your requirements.

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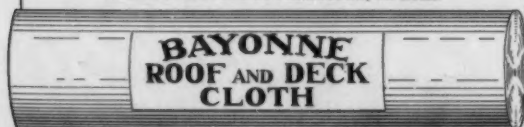
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Doors that Defy Fire and Time!



Would you specify wood doors, wood gratings and wood dampers for stoves and furnaces?

Would a stove or furnace thus equipped be fireproof, safe or of any practical value?

Would you use any wood whatsoever in the construction of a stove or furnace?

Then why specify wood doors and trim for a building and then call that building "FIREPROOF"?

The interior trim of a fireproof building should be as fireproof as the walls, floors and ceilings, and of the best quality material obtainable. If this isn't done, then the building is not fireproof.

THE DAHLSTROM PRODUCTS are quality products of proven superiority. They have stood the tests of the two greatest destructive forces known to mankind — FIRE and TIME.

Since the hollow metal fireproof door was originated and perfected by the Dahlstrom Metallic Door Company numerous firms have sprung up with imitations to commercialize the idea. Nothing of real value and merit has ever yet been produced that some one did not attempt to imitate it by substituting something cheaper and therefore inferior.

Why specify or accept a substitute when eventually you will have to replace the inferior material with real and lasting fireproof trim, thus costing much more than you would have been compelled to pay for first-class material in the beginning? Demand quality products backed by the guarantee and established reputation of the manufacturer and thus avoid use-less expense and inconvenience.

The original cost of THE DAHLSTROM PRODUCTS is the last and only cost — therefore the most economical product to use in the long run. *Proofs for the asking.*

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Executive Offices and Plant

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Nurses' dining room of the Columbia Hospital, Pittsburgh, Pa. This Linotile floor is made up of alternate 6" x 6" squares of light and dark brown, with $\frac{1}{4}$ " white interlining strips. The border and sanitary cove and base are dark brown. Architect, Mr. John L. Brady, Pittsburgh, Pa.

Sanitation Joined with Art

Where sanitation is of paramount importance, as in hospitals, schools, etc., the architect is better served by Linotile than by any other flooring material. Its easily cleaned surface, freedom from open joints and inherent germicidal action fulfil all the requirements of modern sanitary science. Furthermore, its eleven agreeable colors and various sizes and shapes make possible an endless variety of artistic combinations.

LINOTILE

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The Floor that's Built to Fit the Room

Linotile is made of powdered cork, wood flour, linseed oil, and various gums compressed to a thickness of one-quarter inch. It can be laid over wood, concrete, or metal—in fact, over any smooth, level base.

Linotile is practically non-absorbent. Stains, there-

fore, can be easily removed. It presents no cracks, crevices, or pores in which dust and dirt can accumulate. Moreover, the linseed oil it contains is known to possess positive germicidal action.

Samples of Linotile and specimen specifications will be sent on request.

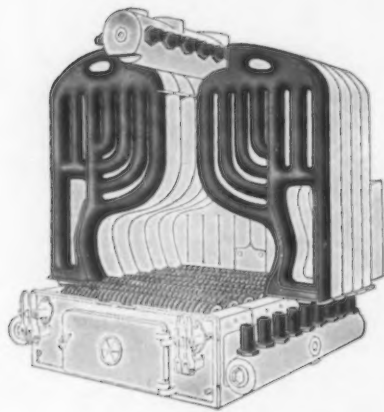
Armstrong Cork & Insulation Company

132 Twenty-Fourth Street, Pittsburgh, Pa.

Also makers of Nonpareil High Pressure Covering for steam lines; Nonpareil Insulating Brick for boiler settings, breechings, etc.; Nonpareil Cork Covering for cold pipes and drinking water systems; Nonpareil Corkboard Insulation for refrigerated rooms; Nonpareil Cork Machinery Isolation for deadening the noises and vibrations of motors, fans, pumps, etc., and Cork Paving Brick for horse and cow stalls.

You may sometimes tell a client that you can specify a cheaper boiler, but you never tell him that you can specify anything better than a

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The idea behind the powerful, efficient boilers used in ocean steamships and big power plants is the water tube. The Mills stands out conspicuously among heating boilers because of its water tubes and drum-and-nipple construction.

Drums or headers insure dry steam, and in water boilers the drums take hot water direct and quickly from each section. The circulation is perfect.

Outside Screw Nipple Connections are more reliable, more durable than inside push nipples, and always accessible. They can't burn out.

Water tubes located in the fire box give great capacity because they are **direct** fire surface, and because they divide the water into small streams, which heat quickly. The water tube sections are carried down to the level of the grate; extending them below this point gains nothing, but invites troubles from uneven heating.

THESE ARE **COLD FACTS** REGARDING
HEATING BOILERS

The H. B. Smith Co.

Manufacturers of Mills, Mercer, Menlo, "H. B." Cottage and Gold Boilers for Steam and Water Warming; Princess, Imperial, Sovereign, Aerial, Gold Pin and School Pin Radiators, "Breckenridge" Automatic Air Valves, etc.

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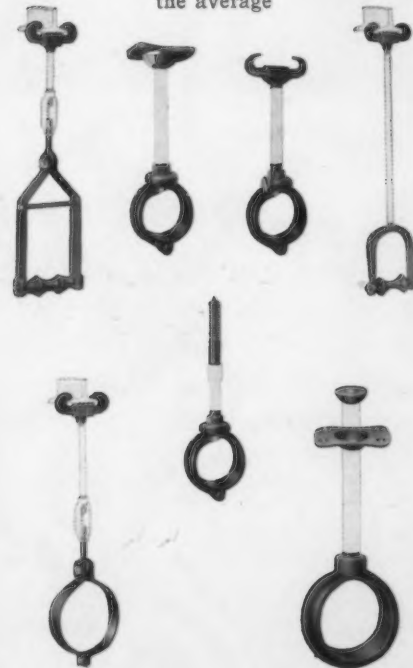


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"The application of the Ric-wil Covering has completely done away with the trouble, so that now no signs in the snow are discovered to even tell us where the pipe is located."

If you specify "Ric-wil Method," you will have No Trouble, No Loss, and complete Satisfaction for years to come.

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Wrought Plate Tubular Boiler Shell

The Boiler Shell of a **Gorton Self-Feeding Boiler** is directly over the fire, where it gets the full benefit of all the heat generated from the coal. The tubes are placed as thickly in the Boiler Shell as proper construction will permit, thus subdividing the water space and enabling the heat to act most effectually.

The products of combustion enter the tubes at the highest temperature and passing up through them are returned down around

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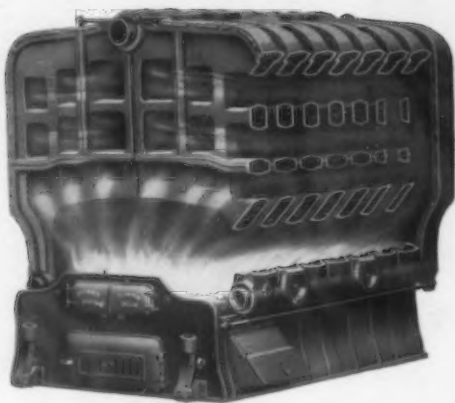
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All Gorton Self-Feeding Boilers built to the
"A. S. M. E. Standard"

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The two boiler-interior illustrations on this page show a marked difference in the arrangement of the direct and indirect heating surfaces. There is a reason for these differences in construction, which result in great economies in fuel consumption.

Each Capitol Boiler is designed for a given rate of combustion. Whether that rate is high or low, the gases must be cooled in the boiler so they leave at the smoke flue at the lowest temperature possible.



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Better Valves

Detroit Packless Radiator Valves were designed to meet the demand for better valves.

They have proved to be better in every way — they are absolutely tight and will stay tight — they do not leak around the stem nor need repacking.

The installation of Detroit Packless Valves means economy and permanent satisfaction for the building owner.

Detroit Packless Radiator Valves

are being specified in prominent buildings throughout the country, because they meet that all-important requirement of maximum utility combined with beauty of line and finish.

The first cost is the whole cost — there is no occasion for having a man spend most of his time keeping them in condition, and there is no danger of their becoming unsightly from rusty, dirty water.

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And the line is complete — angle, corner, globe, gate — in all sizes for every kind of installation on steam and hot-water systems.

Illustrated Booklet B-44 gladly sent on request.

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*Equipped with
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There is no working in the dark. There is no guess-work. *Every* step is in plain view, thus assuring a perfect concrete pile from tip to top. *Every* pile capable of sustaining from 30 to 50 tons.

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CONCRETE PILES

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Apartment House, sound-deadened with Hydrex-SANIFLOR Sound-Deadening Felt. A. P. Clark, Jr., Architect, Washington, D. C.

Than any Risk of Illness

Floors in apartment houses, residences, hotels, etc., should never be sound-deadened with materials containing grass or cattle-hair. Such materials not only harbor mice and vermin, but also, because of their very nature, become day by day more repellent, and in their decomposition give off carbonic gas.

HYDREX-SANIFLOR Sound-Deadening Felt

For efficient and hygienic results use Hydrex-SANIFLOR Sound-Deadening Felt. It is a thick, soft, cushion-like felt with a flexible, waterproof coating on both surfaces, which hermetically seals in the felt and makes it non-absorbent, verminproof and absolutely sanitary. Mice, bugs or moths cannot enter the felt; gnawing causes the coating to stick to the teeth.

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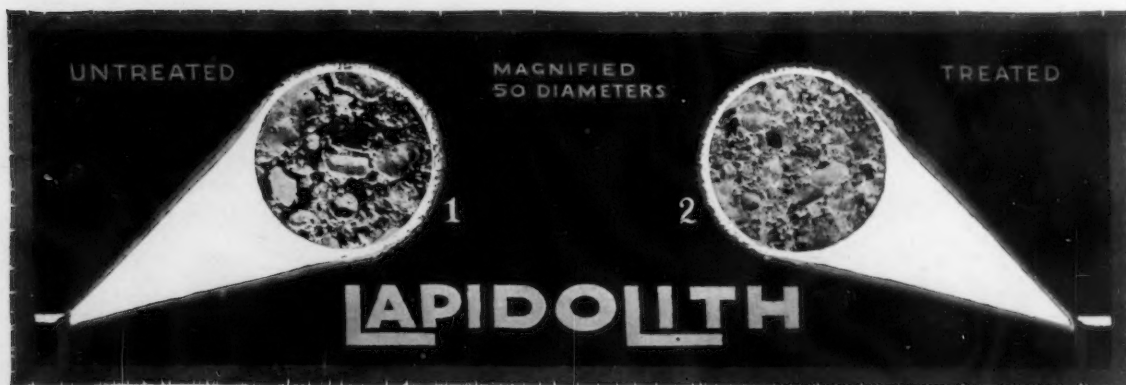
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Also makers of Hydrex-NOVENTO Waterproof Sheathing Paper, HYDREX Waterproofing Felt, HYDREX Compound, HYDREX Waterproof Canvas, Hydrex-PLUVINOX Roofings, etc.

Write for
Pamphlet,

"Sound Transmission
in Buildings."



Lapidolith is the Liquid Chemical Hardener for Concrete Floors

1. Micro photograph of untreated concrete, 1 — 2 mixture. 2. Micro photograph of treated concrete, 1 — 2 mixture.

Note how the voids (black spots) that appear in No. 1 micro photograph are filled up in No. 2. Lapidolith forms with the concrete matrix a hard, insoluble and wear resisting component. It increases the binding power of the cement and prevents the sand and other aggregate from being rolled out of their bedding by the friction of walking and trucking.

Thus Lapidolith makes concrete floors dust-proof, wear-proof and water-proof for years.

The only hardener successfully used for years

Prove it — send for sample bottle, Lapidolized concrete block and booklet of testimonials

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Sherardized Rigid Steel Conduit

receives a superior zinc protective treatment and also coatings of an acid-proof enamel on both exterior and interior surfaces. It has *every* advantage of both zinc protection and enamel protection. This combination is found in *no* other conduit.

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S-11

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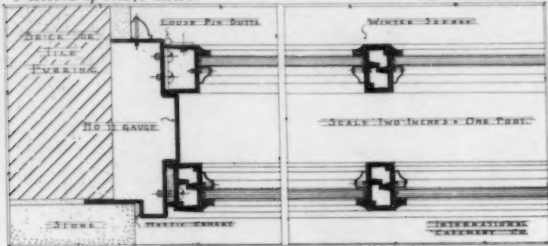
- Metal Molding
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INTERNATIONAL CASEMENTS
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Eliminate Wood and Give
Absolute Weather Protection.

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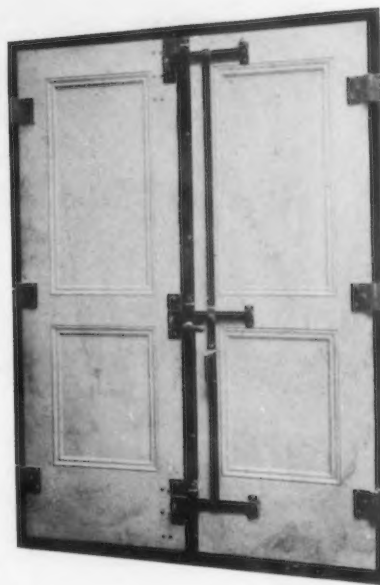


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A CCEPTED Fire Insurance
Authorities pronounce this
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**Constructors and Makers of
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is a good Tin Roof—and this is equally true for residences and other classes of buildings. The Home for Aged Women, Boston, shown in illustration at left, was covered with MF Roofing Tin over forty years ago. The School Building at Jersey City was roofed with MF fifteen years ago.

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Special Hollow Steel Doors, Jams and Interior Trim for
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Band reinforcement electro welded inside hinge and lock edge for hardware.

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Rail welded TO stile--NOT UPON IT.

Mouldings neatly mitered and welded NOT COPED.

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Panel moulding made separately and permanently SNAPPED INTO PLACE--NO SCREWS.

Panel holder and mould clinch WELDED INTO stile and rail. Also forms additional stiffener.

Panels filled solid with fire resisting asbestos.

Special sound deadening filler inserted in stile and rail.

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SHEET METAL
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Swinging and Sliding

ALL METAL SHUTTERS

now labeled by Underwriters Laboratories for

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Saino Galvanized, all Metal Fire Shutters cannot warp or transmit heat. Saino Shutters contain no wood or other material subject to dry rot, combustion or decay.

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484 pages of text and illustration, including color subjects of bathroom layouts. A plumbing fixture for every conceivable purpose.

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"Ideal" Solid Porcelain Bathtubs, China Lavatories, and our other all-clay plumbing fixtures are recognized as the leading material for plumbing fixtures. Every architect needs this catalogue.

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THE idea of **Pomeroy** Protection is: first, to erect non-burning barriers in every path by which a fire might spread; second, to make those barriers so substantial, so durable, that they become a permanent part of the building — not mere makeshifts that must be repeatedly repaired and renewed. **Pomeroy** Protection means Permanent, Profitable Protection.

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Byers Covenant with the Pipe User



THIS will be our covenant with the pipe user: The year of manufacture will be rolled every few feet apart on every length of Byers pipe, as a guarantee of its durability. Thus, pipe made during the remainder of this year will be marked: BYERS '15.

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And that is the very basis Byers wants to stand on.

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Ask for Name of the Byers' Dealer in Your District

BYERS GENUINE WROUGHT IRON PIPE

FULL WEIGHT GUARANTEED

Concerning a Number of Things

Architect and owner — however much they may disagree on minor points — unite in seeking maximum value in every element entering into the structure to be erected.

Architects know — and owners, occasionally — that value isn't a mere matter of labor and material, but involves also the vital element of **service** rendered by the manufacturer in connection with his product.

In the past year we have discussed, in this space, **Sedgwick** Hand-power Dumbwaiters, Invalid Elevators, Domestic Elevators and Industrial Elevators. It is fitting to close the year with a word about **Sedgwick** Service.

Sedgwick Service consists in a close study of each individual case that comes before us, with a view to clearly defining the factors in the problem presented. Then — **Sedgwick** engineers determine upon and recommend the **Sedgwick** outfit that will exactly satisfy those conditions.

Sedgwick Service is the foundation upon which **Sedgwick** satisfaction is built. No **Sedgwick** outfit is ever a compromise — a halfway solution. It must be a full and complete solution — or it is not offered.

We cannot afford to have a **Sedgwick** outfit fail to measure up to the expectations of architect, owner, and ourselves.

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SPECIFICATIONS

"The Dumbwaiter or Elevator to be manufactured and installed by the Sedgwick Machine Works, 182 Liberty Street, New York."

Omit "and installed" if local labor is to be employed.

If you have not already done so, ask to-day for your copy of "Dumbwaiters and Elevators in Modern Architectural Practice."

SEDGWICK MACHINE WORKS

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SPECIALISTS IN HAND-POWER
DUMBWAITERS and ELEVATORS

NEW YORK CITY

For the Removal of Ashes

Economically—Speedily—Safely—Noiselessly



The "One-Man" Feature

All G & G Telescopic Hoists are so designed that it is practical for *one man* to perform entire operation of raising ash cans from cellar to grade and lowering empty cans to cellar. Above illustration shows how operator can "hook" and raise 4 or 5 swing bail ash cans without leaving grade level.

\$115

Price of Model A Hoist illustrated below, F. O. B. Cars, New York City. (Ash cans \$4.75 each extra.)



Model A Hoist illustrated raises cans from cellar to street level. Hoisting head revolves to place can on sidewalk clear of hatch.

INVESTIGATE the **G & G Telescopic Hoist**. It is in general use throughout the country for the removal of ashes in residences, schools, churches, office buildings, etc. It may be readily installed in old buildings and is recommended as a very desirable addition to all plans for new construction.

The
G & G
PATENTED
Telescopic Hoist
with compound gear and brake attachment

Raises load at a guaranteed speed of 30 feet per minute. When not in use, hoist telescopes and no part shows above street level. Operated from grade, insuring fullest protection for both public and operator against injury due to open hatch.

Every hoist is subjected to thorough working test before shipment, and is so compact in construction that it may be shipped completely assembled — not "knocked down." Easily installed. No pit is required — heel of hoist rests on basement floor.

WRITE FOR BOOKLET

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The G & G Sidewalk Door Opening & Closing Device

This patented device is designed for use in connection with all models of the G & G Telescopic Hoist. The device operates automatically, when telescoping handle of hoist is revolved. Sidewalk doors open and close as hoisting head is raised or lowered. An important feature is the *self-locking of doors* whether open or shut. The sidewalk doors provided comply with all city regulations, are flush with surface of sidewalk, frame cast in one solid piece, wrought steel doors — entire surface checkered, water-drain and outlet.

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Model B Hoist illustrated raises cans from cellar to point over top of wagon. No re-handling necessary at grade.

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(Private Office of J. Ogden Armour, Chicago.
Eye Comfort Light from concealed sources.)

Eye Comfort Lighting

(With X-Ray Reflectors)

The great success of this system of Indirect Lighting is attested by the fact that it has been adopted by many of the most prominent and progressive business organizations in the United States.

Among them are Armour & Co., Chicago, entire general office equipment; the Curtis Publishing Co., Philadelphia, full equipment; American Steel & Wire Company offices, Chicago, Cleveland, Worcester, Mass., De Kalb, Ill., Waukegan, Ill., and Anderson, Ind.; Sears, Roebuck & Co., Montgomery Ward & Co., Butler Brothers, Hibbard-Spencer-Bartlett Co., Chicago; Illinois Steel Co.; Northwestern Mutual Life Insurance Co., new office building, Milwaukee; Pennsylvania Railroad Co., offices, Chicago, Philadelphia, Ft. Wayne, Baltimore, Altoona; Franklin MacVeagh & Co., Chicago; Continental and Commercial Bank Building, Chicago.

These are but a few of the many prominent companies and corporations that have adopted the Eye Comfort System after testing it thoroughly in competition with other lighting schemes.

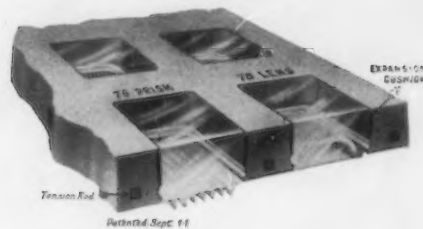
Wherever the Eye Comfort System has been installed its complete success and wonderful superiority over any other method of lighting is fully established.

We furnish free engineering service relative to installation. Send us blue prints or floor plan sketch.

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is known to Architects for its *Daylighting Service*, not for the claims made for it, although a Luxfer promise is a Luxfer guarantee to give Daylighting Service that is predetermined for it.

In Office Buildings, Department Stores, and all kinds of public buildings, and even private residences where Daylight is desired, Luxfer is invaluable.

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This Light "Feels Right" to the Eyes

It is mellow, glareless, uniform and evenly distributed—and is obtainable only with

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DIFFUSION PLUS REFLECTION

The shape and color of the reflector—the character and position of the bowl (all scientifically correct)—combine to produce a light that is handsome—comforting to the eyes—an aid to working efficiency—helps merchandise display—decreases current consumption—lowers maintenance cost.

No matter what your lighting problem, there is a type of Brascolite to solve it. Tell us what your requirements are—and our Engineering Department will help you. Make use of it.

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CATALOG SENT TO ARCHITECTS ONLY

J.F. MUSSELMAN, M. E.
CONSULTING ENGINEER
101 PARK AVE.
NEW YORK

May 18th, 1915

The Electric Cable Company,
Bridgeport, Conn.

Gentlemen:

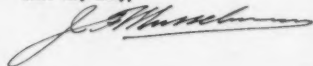
In reply to your inquiry as to what requirements a conscientious manufacturer should meet in the production of an insulated wire that would be altogether satisfactory to me for use in conduits for all usual conditions of building work, I would say that such a wire should fulfill the following requirements:

It should be of a quality known as medium high grade. That is, it should be somewhat better in every respect than usual Code wire, and should test higher than Code requirements.

I should insist that every foot of it be tested in this way and that the manufacturer deliver a certificate of such a test for every reel of wire.

The difficulty of identification of the trade name and grade of wire after it is delivered or installed is a source of great trouble to engineers. I firmly believe that some easily read mark of identification should be made on the outside of all wire, every five or ten feet of its length, which mark should indicate the make and the grade.

Yours very truly,



JFM/S

ECCO Insulated Wire

is now marked ECCO
every three feet

(on the surface of the braid)

Each grade and gauge is likewise indicated. You can be sure of getting the wire you specify.

ECCO "Invincible" House-wire is made better than code—for absolute security. Tested eight different ways. Certified record of test for each coil furnished on request.

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R.I.W. No. 110

THIS great shaft of Milford granite in memory of Commodore Perry rises to a height of 535 feet on the shore of Lake Erie, at Put-in Bay, Ohio.

It can never become disfigured by stains due to chemical action in the cement mortar because the back of each block is coated with "R.I.W." Damp Resisting Paint, No. 110.

"R.I.W." No. 110 protects all kinds of building stone against the alkali in cement mortar, preserves steel work against corrosion.

Preserves both wood and metal against acid and alkali fumes and steel grillage against electrolysis.

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WHAT does the breaking through an inch or so of frost amount to, in comparison with the securing of the thorough establishment of your evergreen trees' roots, so that they can have full advantage of the early Spring growth, which is so vital to the root development and strength, and amount of the season's top growth?

Just now, when the trees are bare and everything is in its exposed rawness, you fully appreciate the urgent need of evergreens to add beauty and cheer to the landscape; or to hide an unsightly outlook or the annoyingly curious passersby.

We have five different varieties of evergreens in 4 feet heights that we are offering at attractive prices.

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If you want trees 30 feet high, we have them.

Every tree you buy of us is guaranteed to grow satisfactorily or it is cheerfully replaced.



Hicks Trees

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By Specifying All Interior Trim of
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Your own requirements will be adequately filled in every detail and your judgment permanently endorsed in the mind of the owner by the beauty, variety, and durability of the material itself.

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They will save your client continual roofing and painting expense and give any desired combination of soft color shades that last a lifetime. One never tires of "CREO-DIPT" colors.

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17 Grades 16, 18, 24-inch 30 Different Colors

We select best cedar shingles, preserve them by our special process in creosote, and stain them any color desired. They last twice as long as brush-coated shingles or natural wood. They do not curl up or blow off. Save muss, uneven colors and waste of staining-on-the-job.

Write to-day for colors on wood and your book of "CREO-DIPT" Homes in all parts of the country. Get your lumber dealer to carry in stock standard shades of our greens, reds and browns.



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Factory in Chicago for Western Trade

They Come Stained, Ready-to-Lay Without Waste

Devoe Oil Wood Stains

are pigment stains, not aniline. They are strictly unfading. They penetrate deeply, but they do not raise the grain of the wood.

SET OF OAK PANELS
Showing Twelve Colors, on Request

Architects not familiar with services rendered by our Building Construction Department are invited to write for particulars, or a representative will call.

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Paints, Varnishes, Stains, Enamels
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is the one certified and established greenhouse wood. For nearly a century all-heart Cypress has been almost universally used as the first choice in greenhouse construction and, so far as known, it has not failed to render a more than creditable account of itself. (And greenhouse work is as trying to the endurance of wood as any use to which lumber may be put.) The largest and most responsible greenhouse manufacturers in the country know about this "wood eternal." Ask them. "Pecky" Cypress is homely (and cheap), but is the standard of the world for greenhouse benches and all horticultural rough work. It bears the weight of the barrow far better than concrete slabs. "Pecky" Cypress is not pretty. It has holes in it. But the repute of Cypress has not. The "Wood Eternal" always makes good. Insist on all-heart.

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North Carolina Pine contains very little resinous matter. For this reason it takes and holds paints, stains and varnishes better than any wood of its kind on the market.

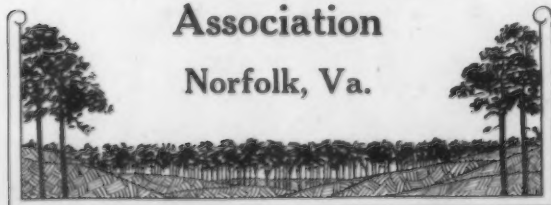
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North Carolina Pine Association
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Architect: I understand you are to do the finishing of the new building I have designed, and which calls for one of the newest finishes. May I ask what material you are in the habit of using?

Painter: Nothing but Bridgeport Standard. My twenty years' experience has taught me that Bridgeport Standard is absolutely right in every instance. With it I can produce the very latest effects, and every job done by me has always met with the architect's approval.

Architect: Good! As I always specify Bridgeport Standard because experience has taught me the same thing, there isn't any doubt but that my specifications will be faithfully carried out to the entire satisfaction of all concerned.

Are YOU Specifying Bridgeport Standard

and producing on your work all the newest beautiful effects, including the grays and rich browns (fumed) and mahoganies?

If not, ask us to submit you sample panels illustrating effects on any wood desired

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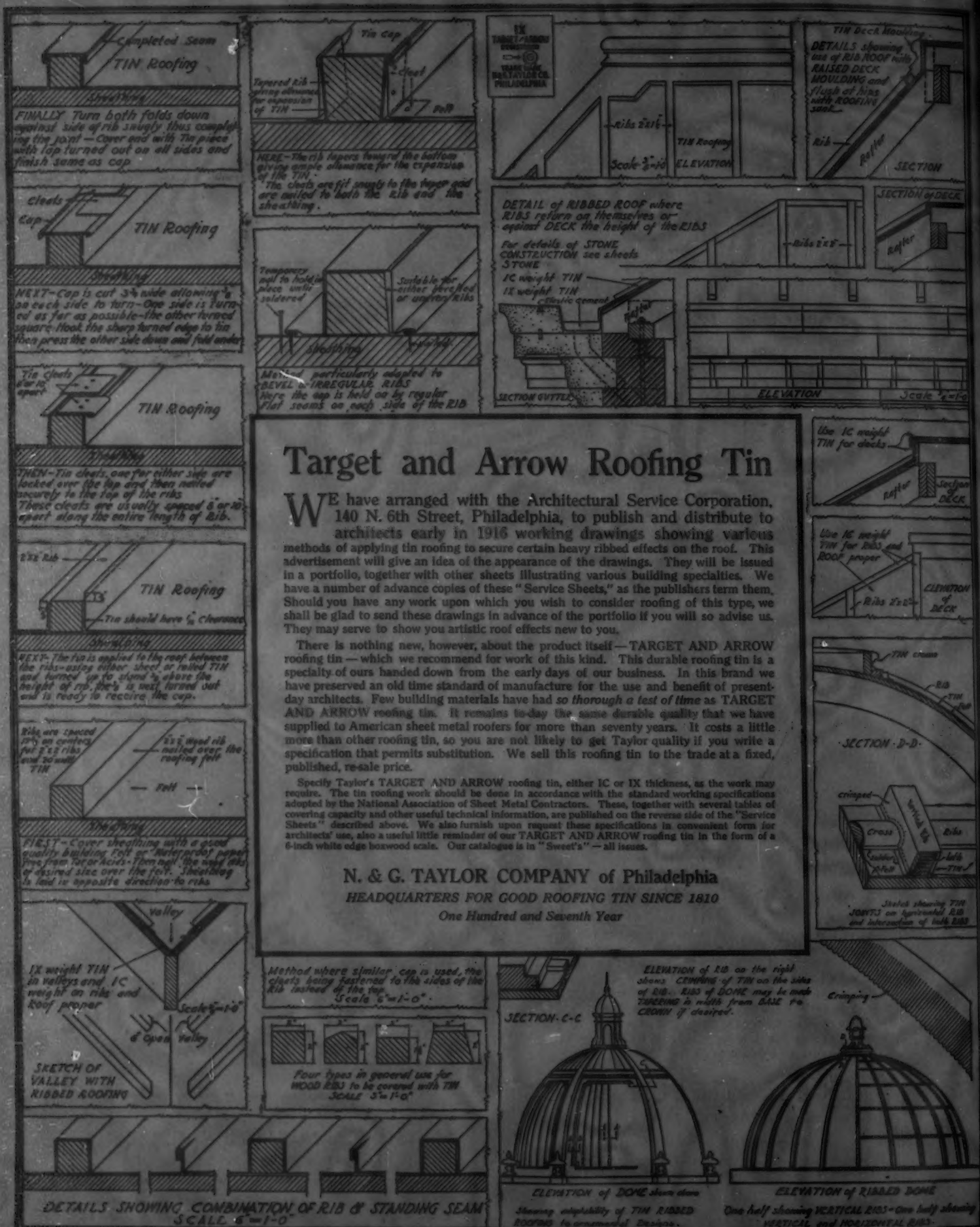
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